

National Aeronautics and
Space Administration

**NSTS 07700, VOLUME I
REVISION G
DECEMBER 17, 1997**

Lyndon B. Johnson Space Center
Houston, Texas 77058

**REPLACES
NSTS 07700, VOLUME I
REVISION F**

SPACE SHUTTLE

PROGRAM DESCRIPTION AND REQUIREMENTS BASELINE

PROGRAM DEFINITION AND REQUIREMENTS

REVISION LOG

REV LTR	CHANGE NO	DESCRIPTION	DATE
		BASELINE ISSUE (Reference PRCBD SS00051)	06/25/73
A	5	REVISION A (Reference: Level II PRCBD S01563, dated 6/13/75 also includes PRCBD's S00829, dated 2/7/75 and S01204A, dated 5/15/72.	06/13/75
B	27	REVISION B (Reference: Level II PRCBD S40129, dated 7/23/86) also includes Changes 6 thru 26.	08/11/86
C	28	REVISION C (Reference: Level II PRCBD S00051A, dated 5/12/87) also includes S00051AR1, S40131, S40166A, S40349 and S40356AR1.	08/21/87
D	45	REVISION D (Reference: Level II PRCBD S000051C, dated 2/22/91) also includes Change 29 thru 44.	04/04/91
E	47	REVISION E (Reference: S000051E, dated 3/23/93) also includes S004600F, S052730, SSP DOC-057, SSP DOC-064, SSP DOC-066, SSP DOC-068 and Change 46.	04/20/93
F	54	REVISION F (Reference: SSP DOC-204, dated 6/15/94) also includes Space Shuttle PRCBDs S000051N, S060335 and SSP DOC-209.	07/08/94
G	68	REVISION G (Reference: Space Shuttle PRCBD S060643G, dated 11/17/97) and CAR S060643G, dated 12/4/97.	12/17/97

CHANGE SHEET
FOR
PROGRAM DEFINITION AND REQUIREMENTS
VOLUME I - Space Shuttle
Program Description and Requirements Baseline

CHANGE NO. 77

Program Requirements Control Board Directive No. S060643N/(1-1), dated 2/2/01.(1)

February 22, 2001

Robert H. Heselmeyer
Secretary, Program Requirements
Control Board

CHANGE INSTRUCTIONS

1. Remove the following listed pages and replace with the same numbered attached pages:

<u>Page</u>	<u>PRCBD No.</u>
v	S060643N
vi	
3-1	S060643N
3-2	
3-11	
3-12	S060643N

NOTE: A black bar in the margin indicates the information that was changed.

2. Remove the List of Effective Pages, dated December 18, 2000 and replace with List of Effective Pages, dated February 22, 2001.
3. Sign and date this page in the space provided below to show that the changes have been incorporated and file immediately behind the List of Effective Pages.

Signature of person incorporating changes

Date

PROGRAM DEFINITION AND REQUIREMENTS
VOLUME I - Space Shuttle
Program Description and Requirements Baseline

*Revision G (Reference PRCBD No. S060643G, dated 11/17/97 and CAR S060643G, dated 12/4/97)

LIST OF EFFECTIVE PAGES

February 22, 2001

The current status of all pages in this document is as shown below:

<u>Page No.</u>	<u>Change No.</u>	<u>PRCBD No.</u>	<u>Date</u>
i - iv	Rev. G	*	December 17, 1997
v	77	S060643N	February 2, 2001
vi	76	S060643M	November 27, 2000
vii	74	S060643L	March 27, 2000
viii	Rev. G	*	December 17, 1997
1-1	74	S060643L	March 27, 2000
1-2	Rev. G	*	December 17, 1997
2-1 - 2-2	76	S060643M	November 27, 2000
2-3	Rev. G	*	December 17, 1997
2-4	76	S060643M	November 27, 2000
2-5	Rev. G	*	December 17, 1997
2-6 - 2-8	76	S060643M	July 11, 2000
3-1	77	S060643N	February 2, 2001
3-2 - 3-3	Rev. G	*	December 17, 1997
3-4	76	S060643M	November 27, 2000
3-5 - 3-6	Rev. G	*	December 17, 1997
3-7	70	S060790D	July 17, 1998
3-8 - 3-10	Rev. G	*	December 17, 1997
3-11	75	SSP DOC-455	February 22, 2000
3-12	77	S060643N	February 2, 2001
3-13 - 3-18	Rev. G	*	December 17, 1997
4-1	Rev. G	*	December 17, 1997
4-2	72	S071024GF	July 2, 1999
4-3 - 4-6	Rev. G	*	December 17, 1997
5-1 - 5-10	76	S060643M	November 27, 2000
A-1 - A-7	Rev. G	*	December 17, 1997
A-8	76	S060643M	November 27, 2000
A-9 - A-14	Rev. G	*	December 17, 1997

LIST OF EFFECTIVE PAGES

February 22, 2001

<u>Page No.</u>	<u>Change No.</u>	<u>PRCBD No.</u>	<u>Date</u>
A-15 - A-16	75	SSP DOC-455	February 22, 2000
A-17 - A-18	71	S060643J	May 22, 1999
A-19	75	S061461	June 19, 2000
A-20	69	S060643H	March 20, 1998
A-21	Rev. G	*	December 17, 1997
A-22 - A-23	71	S060643J	May 22, 1999
A-24 - A-28	Rev. G	*	December 17, 1997
A-29 - A-30	71	S060643J	May 22, 1999
A-31 - A-40	Rev. G	*	December 17, 1997
A-41	71	S060643J	May 22, 1999
A-42	Rev. G	*	December 17, 1997
A-43	71	S060643J	May 22, 1999
A-44 - A-54	Rev. G	*	December 17, 1997
A-55	69	S060643H	March 20, 1998
A-56 - A-59	Rev. G	*	December 17, 1997
A-60 - A-61	71	S060643J	May 22, 1999
A-62	Rev. G	*	December 17, 1997
A-63	71	S060643J	May 22, 1999
A-64 - A-68	Rev. G	*	December 17, 1997
A-69	71	S060643J	May 22, 1999
A-70 - A-72	Rev. G	*	December 17, 1997
A-73 - A-74	71	S060643J	May 22, 1999
A-75	Rev. G	*	December 17, 1997
A-76	69	S060643H	March 20, 1998
A-77	Rev. G	*	December 17, 1997
A-78	69	S060643H	March 20, 1998
A-79 - A-84	Rev. G	*	December 17, 1997
A-85	71	S060643J	May 22, 1999
A-86	Rev. G	*	December 17, 1997
A-87 - A-88	71	S060643J	May 22, 1999
A-89	Rev. G	*	December 17, 1997
A-90	76	S060643M	November 27, 2000
A-91 - A-92	Rev. G	*	December 17, 1997
A-93	71	S060643J	May 22, 1999
A-94 - A-99	Rev. G	*	December 17, 1997
A-100	71	S060643J	May 22, 1999

LIST OF EFFECTIVE PAGES

February 22, 2001

<u>Page No.</u>	<u>Change No.</u>	<u>PRCBD No.</u>	<u>Date</u>
A-101	69	S060643H	March 20, 1998
A-102	Rev. G	*	December 17, 1997
A-103	71	S060643J	May 22, 1999
A-104	Rev. G	*	December 17, 1997
A-105	71	S060643J	May 22, 1999
A-106	Rev. G	*	December 17, 1997
A-107	71	S060643J	May 22, 1999
A-108 - A-113	Rev. G	*	December 17, 1997
A-114	71	S060643J	May 22, 1999
A-115 - A-118	Rev. G	*	December 17, 1997
A-119	71	S060643J	May 22, 1999
A-120	75	S061461	June 19, 2000
A-121	71	S060643J	May 22, 1999
A-122 - A-124	Rev. G	*	December 17, 1997
A-125	76	S060643M	November 27, 2000
A-126	Rev. G	*	December 17, 1997
A-127 - A-130	71	S060643J	May 22, 1999
A-131 - A-137	Rev. G	*	December 17, 1997
A-138	69	S060643H	March 20, 1998
A-139	71	S060643J	May 22, 1999
A-140 - A-141	Rev. G	*	December 17, 1997
A-142	71	S060643J	May 22, 1999
A-143 - A-148	Rev. G	*	December 17, 1997
B-1	73	S060643K	July 27, 1999
B-2	Rev. G	*	December 17, 1997
C-1	74	S060643L	March 27, 2000
C- 2	Rev. G	*	December 17, 1997

NSTS 07700
VOLUME I

SPACE SHUTTLE

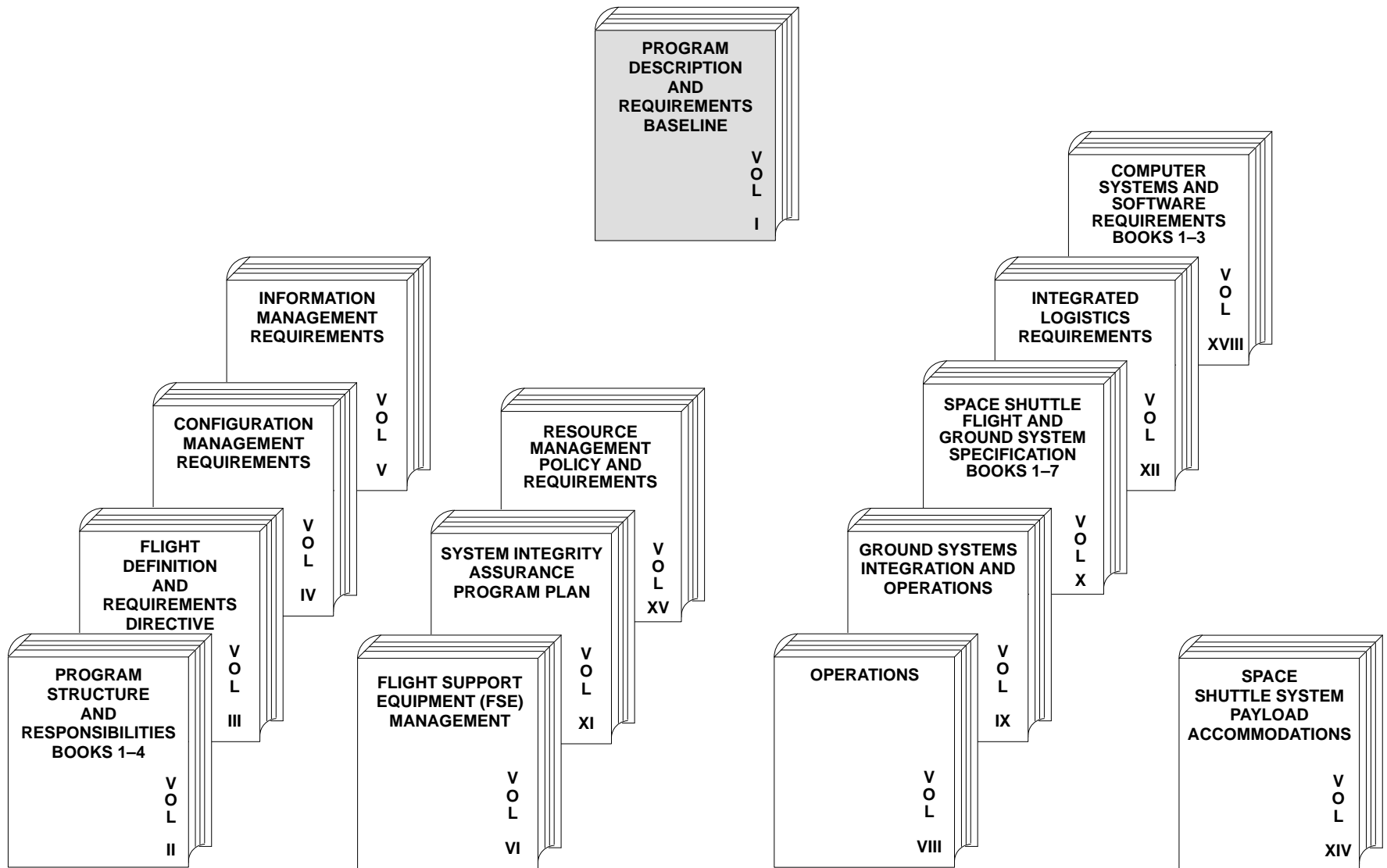
PROGRAM DESCRIPTION AND REQUIREMENTS
BASELINE

SPACE SHUTTLE PROGRAM DEFINITION AND REQUIREMENTS – NSTS 07700

NSTS 07700, Volume I
Revision G

II

CHANGE NO. 68



NOTE: THE FOLLOWING VOLUME NUMBERS ARE
RESERVED: XVII
RETIRED: II-BKS 1 & 4; VI-BK 2; VII;
X-BKS 5 & 7; XIII; XVI

FOREWORD

Efficient management of the Space Shuttle Program (SSP) dictates that effective control of program activities be established. Requirements, directives, procedures, interface agreements, and system capabilities shall be documented, baselined, and subsequently controlled by SSP management.

Program requirements, directives, procedures, etc., controlled by the Manager, Space Shuttle Program, are documented in the volumes of this document, NSTS 07700. The accompanying illustration identifies the volumes that make up the Space Shuttle Program Definition and Requirements. Volume I contains overall descriptions of the NSTS 07700 documentation. Requirements to be controlled by the NASA project managers are to be identified, documented, and controlled by the project.

NSTS 07700, Volume I, in addition to providing overall descriptions of the other volumes of NSTS 07700, defines the objective of the Space Shuttle Program, provides a general description of the overall program, and defines responsibilities which have been assigned to the Space Shuttle Program and projects for accomplishing the Space Shuttle Program objective.

All elements of the SSP must adhere to these baselined requirements. When it is considered by the Space Shuttle Program element/project managers to be in the best interest of the SSP to change, waive or deviate from these requirements, an SSP Change Request (CR) shall be submitted to the Program Requirements Control Board (PRCB) Secretary. The CR must include a complete description of the change, waiver or deviation and the rationale to justify its consideration. All such requests will be processed in accordance with NSTS 07700, Volume IV - Book 1 and dispositioned by the Manager, Space Shuttle Program, on a Space Shuttle PRCB Directive (PRCBD).



Tommy W. Holloway
Manager, Space Shuttle Program

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

NSTS 07700, Volume I

1.0	INTRODUCTION	1-1
1.1	PURPOSE	1-1
1.2	SCOPE	1-1
2.0	APPLICABLE DOCUMENTS	2-1
3.0	PROGRAM DESCRIPTION	3-1
3.1	PROGRAM GOALS	3-1
3.2	PROGRAM REQUIREMENTS CONTROL	3-1
3.2.1	Space Shuttle Program Control	3-1
3.2.2	Project Control	3-1
3.3	MISSION CAPABILITY	3-1
3.4	SPACE SHUTTLE PROGRAM MANAGEMENT	3-2
3.4.1	Manager, Space Shuttle Program	3-2
3.4.2	Space Shuttle Program Elements/Projects/Directorates	3-4
3.4.3	NASA Centers	3-9
3.4.4	Program Element/Project Contractors	3-9
3.5	FACILITY UTILIZATION	3-12
3.6	DEPARTMENT OF DEFENSE INTERFACE	3-12
3.7	PROGRAM RESOURCES	3-12
4.0	SPACE SHUTTLE PROGRAM DEFINITION AND REQUIREMENTS BASELINE	4-1
4.1	MANAGEMENT REQUIREMENTS	4-1
4.1.1	Volume II - Program Structure and Responsibilities	4-1
4.1.2	Volume III - Flight Definition and Requirements Directive	4-1
4.1.3	Volume IV - Configuration Management Requirements	4-1
4.1.4	Volume V - Information Management Requirements	4-2
4.1.5	Volume VI - Flight Support Equipment (FSE) Management	4-2
4.1.6	Volume VII - Commonality Management	4-2
4.1.7	Volume XI - System Integrity Assurance Program Plan	4-3
4.1.8	Volume XIII - NASA Support to VAFB Launch and Landing Site Development and Activation	4-3
4.1.9	Volume XV - Resource Management Policy and Requirements	4-3
4.1.10	Volume XVI - Space Shuttle Program/Space Station Freedom Program Program Management Plan	4-3

CONTENTS

NSTS 07700, Volume I

4.2	TECHNICAL REQUIREMENTS	4-3
4.2.1	Volume VIII - Operations	4-4
4.2.2	Volume IX - Ground Systems Integration and Operations	4-4
4.2.3	Volume X - Flight and Ground System Specification	4-4
4.2.4	Volume XII - Integrated Logistics Requirements	4-5
4.2.5	Volume XIV - Space Shuttle System Payload Accommodations ...	4-5
4.2.6	Volume XVIII - Computer Systems and Software Requirements ...	4-5
4.2.7	Safety, Reliability, and Quality Assurance	4-5
4.3	SPACE SHUTTLE PROGRAM BASELINE	4-6
5.0	RISK MANAGEMENT	5-1
5.1	OBJECTIVES	5-1
5.2	SCOPE	5-1
5.3	RESPONSIBILITIES	5-2
5.4	RISK MANAGEMENT PROCESSES	5-2
5.4.1	Risk Assessment Tools and Methods	5-2
5.4.2	Technical and Safety Risk	5-6
5.4.3	Cost Risk	5-8
5.4.4	Schedule Risk	5-8
5.5	SSP MANAGEMENT REVIEW PROCESSES	5-9
5.5.1	Configuration Control	5-9
5.5.2	SSP Board Authority and Safety Review	5-9
5.5.3	Certificate of Flight Readiness	5-10

APPENDICES

NSTS 07700, Volume I

A	ACRONYMS AND ABBREVIATIONS	A-1
B	(DELETED)	B-1
C	(DELETED)	C-1



FIGURES

NSTS 07700, Volume I

3-1	SPACE SHUTTLE VEHICLE CONFIGURATION	3-15
3-2	SPACE SHUTTLE PROGRAM ORGANIZATION	3-16
3-3	SPACE SHUTTLE PROGRAM ELEMENTS/PROJECTS	3-17

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is (1) to define the objective of the Space Shuttle Program (SSP); (2) to provide a general description of the overall program; (3) to define responsibilities which have been assigned to the SSP organizations/contractors for accomplishing the program objectives, and (4) to establish and define those technical, management, and resources requirements which are to be controlled by the Manager, Space Shuttle Program.

1.2 SCOPE

This document is applicable to the Johnson Space Center (JSC), Marshall Space Flight Center (MSFC), Kennedy Space Center (KSC) and Stennis Space Center (SSC) organizations and personnel involved in the conduct of the SSP. In order to meet the requirements contained in this document, project requirements have been imposed on the functional organizations of JSC, MSFC, KSC, SSC, and on the SSP contractors. Space Shuttle program elements/projects are responsible for developing and implementing these project level requirements.

THIS PAGE INTENTIONALLY LEFT BLANK

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this document to the extent specified herein. “(Current Issue)” is shown in place of a specific date and issue when the document is under the control of a NASA Program Requirements Control Board (PRCB). The current status of the NASA documents shown with “(Current Issue)” may be determined from NSTS 08102, Program Document Description and Status Report.

NSTS 07700 (Current Issue)	Program Definition and Requirements Ref. Foreword, Para. 3.2.1, 4.0, 4.1, 4.3, 5.2, 5.4	I
NSTS 07700 Volume II (Current Issue)	Program Structure and Responsibilities Ref. Para. 4.1.1	
NSTS 07700 Volume II - Book 1 (Retired)	Program Structure and Responsibilities, Program Work Breakdown Structure (PWBS) Ref. Para. 4.1.1	
NSTS 07700 Volume II - Book 2 (Current Issue)	Program Structure and Responsibilities, Space Shuttle Program Directives Ref. Para. 4.1.1, 5.3, 5.5.2	I
NSTS 07700 Volume II - Book 3 (Current Issue)	Program Structure and Responsibilities, Space Shuttle Program Interface Agreements Ref. Para. 4.1.1	
NSTS 07700 Volume II - Book 4 (Retired)	Program Structure and Responsibilities, Orbital Flight Test Operations Directives Ref. Para. 4.1.1	

NSTS 07700
Volume III
(Current Issue)

Flight Definition and Requirements Directive

Ref. Para. 4.1.2, 5.4.4

I

NSTS 07700
Volume IV
(Current Issue)

Configuration Management Requirements

Ref. Para. 4.0, 4.1.3, 4.3, 5.4.3, 5.5.1

I

NSTS 07700
Volume IV - Book 1
(Current Issue)

Configuration Management Requirements,
Requirements

Ref. Foreword, Para. 3.2.1, 4.1.3

NSTS 07700
Volume IV - Book 2
(Current Issue)

Configuration Management Requirements,
Configuration Deviations/Waivers

Ref. Para. 4.1.3

NSTS 07700
Volume V
(Current Issue)

Information Management Requirements

Ref. Para. 4.1.4, 5.4.1.1, 5.4.2.1, 5.4.2.2

I

NSTS 07700
Volume VI
(Current Issue)

Flight Support Equipment (FSE) Management

Ref. Para. 4.1.5

NSTS 07700
Volume VI - Book 2
(Retired)

Flight Support Equipment (FSE) Management,
Inter-Project Hardware Accountability

Ref. Para. 4.1.5

NSTS 07700
Volume VII
(Retired)

Commonality Management

Ref. Para. 4.1.6

NSTS 07700
Volume VIII
(Current Issue)

Operations

Ref. Para. 4.2.1

NSTS 07700
Volume IX
(Current Issue)

Ground Systems Integration and Operations

Ref. Para. 4.2.2

NSTS 07700
Volume X
(Current Issue)

Space Shuttle Flight and Ground System
Specification

Ref. Para. 4.2.3, 4.2.7

NSTS 07700
Volume X - Book 1
(Current Issue)

Space Shuttle Flight and Ground System
Specification, Requirements

Ref. Para. 4.2.3

NSTS 07700
Volume X - Book 2
(Current Issue)

Space Shuttle Flight and Ground System
Specification, Environment Design, Weight
and Performance, and Avionics Events

Ref. Para. 4.2.3

NSTS 07700
Volume X - Book 3
(Current Issue)

Space Shuttle Flight and Ground System
Specification, Requirements for Runways and
Navigation Aids

Ref. Para 4.2.3

NSTS 07700
Volume X - Book 4
(Current Issue)

Space Shuttle Flight and Ground System
Specification, Active Deviations/Waivers

Ref. Para 4.2.3

NSTS 07700
Volume X - Book 5
(Retired)

Space Shuttle Flight and Ground System
Specification, FMEA/CIL Deviations/Waivers

Ref. Para 4.2.3

NSTS 07700
Volume X - Book 6
(Current Issue)

Space Shuttle Flight and Ground System
Specification, Retired Deviations/Waivers

Ref. Para 4.2.3

NSTS 07700
Volume X - Book 7
(Retired)

Space Shuttle Flight and Ground System
Specification, Rescinded Deviations/Waivers

Ref. Para. 4.2.3

NSTS 07700
Volume XI
(Current Issue)

System Integrity Assurance Program Plan

Ref. Para. 4.1.7, 5.4.1.1

NSTS 07700
Volume XII
(Current Issue)

Integrated Logistics Requirements

Ref. Para. 4.2.4

NSTS 07700
Volume XIII
(Retired)

NASA Support to VAFB Launch and Landing Site
Development and Activation

Ref. Para. 4.1.8

NSTS 07700
Volume XIV
(Current Issue)

Space Shuttle System Payload Accommodations

Ref. Para. 4.2.5

NSTS 07700
Volume XV
(Current Issue)

Resource Management Policy and Requirements

Ref. Para. 3.7, 4.1.9

NSTS 07700
Volume XVI
(Retired)

Space Shuttle Program/Space Station Freedom
Program Program Management Plan

Ref. Para. 4.1.10

NSTS 07700
Volume XVIII
(Current Issue)

Computer Systems and Software Requirements

Ref. Para. 4.2.6

NSTS 07700
Volume XVIII - Book 1
(Current Issue)

Computer Systems and Software Requirements,
Allocation of Computational Functions

Ref. Para. 4.2.6

NSTS 07700
Volume XVIII - Book 2
(Current Issue)

Computer Systems and Software Requirements,
Allocation of Simulation Functions

Ref. Para. 4.2.6

NSTS 07700
Volume XVIII - Book 3
(Current Issue)

Computer Systems and Software Requirements,
Software Management and Control

Ref. Para. 4.2.6

NSTS 07700-
10-MVP-01
(Current Issue)

Shuttle Master Verification Plan - Volume I,
General Approach and Guidelines

Ref. Para. 5.4.2.2

NSTS 5300.4(1D-2)
(Current Issue)

Safety, Reliability, Maintainability and Quality
Provisions for the Space Shuttle Program

Ref. Para. 4.2.7, 5.4.2.2, 5.4.2.3

NSTS 08102
(Current Issue)

Program Document Description and Status
Report

Ref. Para. 2.0

NSTS 08117
(Current Issue)

Space Shuttle Requirements and Procedures for
Certification of Flight Readiness

Ref. Para. 5.5.3

NSTS 08171
(Current Issue)

Operations and Maintenance Requirements and
Specifications Document (OMRSD)

Ref. Para 5.4.2.2

NSTS 08178
(Current Issue)

Space Shuttle Program Schedules

Ref. Para. 5.4.4

NSTS 08198 (Current Issue)	Safety and Obsolescence (S&O) Vulnerability Assessment Methodology Ref. Para. 5.4.1.4
NSTS 12820	Space Shuttle Operational Flight Rules Ref. Para. 5.4.2.3
NSTS 16007 (Current Issue)	Shuttle Launch Commit Criteria and Background Ref. Para. 5.4.1.3, 5.4.2.3
NSTS 22206 (Current Issue)	Requirements for Preparation and Approval of Failure Modes Effects Analysis (FMEA) and Critical Items List (CIL) Ref. Para. 5.4.1.3
NSTS 22254 (Current Issue)	Methodology for Conduct of Space Shuttle Program Hazard Analyses Ref. Para. 5.4.1.2, 5.4.1.3
NSTS 37310 (Current Issue)	Space Shuttle Program Safety Risk Ranking Methodology Ref. Para. 5.4.1.4
NSTS 37400 (Current Issue)	Space Shuttle Program Upgrades Management Plan Ref. Para. 3.4.1.4
NASA/DOD Memorandum of Understanding February 1980	Management and Operation of the Space Transportation System Ref. Para. 3.6

THIS PAGE INTENTIONALLY LEFT BLANK

I

3.0 PROGRAM DESCRIPTION

This section provides an overall description of the SSP, including the program objective and program mission capability; a summary of the program content; general descriptions of plans for Space Shuttle operations, facility utilization, procurement of major elements of the program, program interfaces with the Department of Defense (DOD), and overall management of the program; and resources requirements and program requirements control procedures which have been established for the program.

3.1 PROGRAM GOALS

The goals of the program are to establish and operate a program capability that will fly safely, meet the manifest, improve supportability, and improve the system.

3.2 PROGRAM REQUIREMENTS CONTROL

The Manager, Space Shuttle Program, has been delegated full authority to execute the program from the Director, JSC, the Lead Center Director for the SSP. Program parameters are to be controlled at various levels. Lower levels of program responsibility are to be responsive to the control requirements of higher levels. Proposed changes which have a potential for impact of program parameters under the control of a higher level will be identified and their estimated impact to the higher level will be communicated through the proper program lines of communication. Proposed changes affecting higher levels shall not be implemented prior to receipt of approval from the appropriate level of authority.

3.2.1 Space Shuttle Program Control

SSP parameters are documented in the various volumes of NSTS 07700, Program Definition and Requirements and are controlled by the Manager, Space Shuttle Program. The program parameters that are documented in each of the NSTS 07700 volumes are summarized in Section 4.0 of this document. Procedures for control of changes to program parameters are contained in NSTS 07700, Volume IV - Book 1, Configuration Management Requirements, Requirements.

3.2.2 Project Control

Project parameters are established and controlled by the SSP elements/projects managers for their areas of responsibility.

3.3 MISSION CAPABILITY

The Space Shuttle System consists of the Space Shuttle Vehicle (SSV) elements, Shuttle Carrier Aircraft (SCA), payload accommodations, and ground support systems. The SSV has the capability to perform a variety of missions, including:

- a. Delivery of payloads to specified Earth orbits.
- b. Placement of payloads into parking orbits for subsequent transfer to other orbits or Earth escape trajectories.
- c. Rendezvous and stationkeeping with detached payloads/space stations.
- d. Monitoring and checkout of payloads.
- e. Return of payloads to Earth from a specified orbit.
- f. Routine and special support to space activities such as sortie missions, rescue, repair, maintenance, servicing, assembly, disassembly, and docking.
- g. SSP/International Space Station Program (ISSP) integration support.

The SSV consists of a reusable Orbiter Vehicle with three installed Space Shuttle Main Engines (SSMEs), two reusable Solid Rocket Boosters (SRBs), and an expendable External Tank (ET).

The SSV configuration is depicted in Figure 3-1.

3.4 SPACE SHUTTLE PROGRAM MANAGEMENT

The SSP management includes the Manager, Space Shuttle Program, JSC; Manager, Launch Integration, KSC; Manager, Space Shuttle Program Integration, JSC; Manager, Space Shuttle Program Safety and Mission Assurance, JSC; Manager, Space Shuttle Program Development, JSC; and the Space Shuttle Program elements/projects/directorates which support program activities at all locations. The following paragraphs summarize the organization and responsibilities. The SSP organization is illustrated in Figure 3-2.

3.4.1 Manager, Space Shuttle Program

The Manager, Space Shuttle Program, has been assigned full responsibility and authority for the operation and conduct of the SSP and has authority and responsibility for:

- a. Overall program requirements and performance
- b. Total program control, including budget, schedule, and program content
- c. Approval of critical hardware waivers and deviations
- d. Budget authorization adjustments that exceed a predetermined level
- e. Informing the Lead Center Director on items of program content and status

- f. Establishment and control of an SSP requirements baseline
- g. Detailed program planning, direction, scheduling, and SSP system Configuration Management (CM)
- h. System engineering and integration of the SSV, ground systems and facilities
- i. Integration of payloads with the Orbiter
- j. Mission planning and integration

3.4.1.1 Manager, Launch Integration, KSC

The Manager, Launch Integration, KSC is responsible for:

- a. Final vehicle preparation and return of the Orbiter Vehicle for processing for its next flight.
- b. Management of the Certification of Flight Readiness (CoFR) process.
- c. Management of the presentation and scheduling of the Flight Readiness Review (FRR).
- d. Management of final launch decision process including final authority for launch commit.
- e. Chairing the Mission Management Team (MMT) prior to launch.

3.4.1.2 Manager, Space Shuttle Program Integration

The Manager, Space Shuttle Program Integration is responsible for the following:

- a. Managing the Space Shuttle Program Integration day-to-day flight specific preparations as well as payload and integrated systems safety
- b. Reviewing flight preparation status and resolving flight readiness, operations and postlanding issues
- c. Mission execution and chairing the MMT during flight
- d. Co-Chair of the JMICB

3.4.1.3 Manager, Space Shuttle Program Safety and Mission Assurance

The Manager, Space Shuttle Program Safety and Mission Assurance is responsible for managing the Space Shuttle Safety and Mission Assurance implementation and for oversight of all S&MA activities in support of SSP. Specific responsibilities include:

- a. Represent the Program Manager on S&MA matters at internal and external forums.
- b. Provide S&MA requirements, tasks, and resource integration for NASA and contractor support.
- c. Develop program strategies for complying with agency S&MA policy and procedures while ensuring strategies are responsive to program requirements.
- d. Evaluate program risks and advise the Program Managers on their acceptability.
- e. Ensure establishment of contractor S&MA processes to assure that the Space Shuttle and its related support systems are designed, constructed, qualified, and operated satisfactorily to perform their intended purposes.
- f. Management of the risk management process.

3.4.1.4 Manager, Space Shuttle Program Development

The Manager, Space Shuttle Program Development, JSC is responsible for management of the SSP Upgrades Program as defined in NSTS 37400, Space Shuttle Program Upgrades Management Plan which includes:

- a. Reviewing and selecting upgrades for SSP development consideration
- b. Funding studies and tests to determine upgrade feasibility and benefits
- c. Prioritizing upgrades based on established criteria for meeting program goals
- d. Approving flight demonstrations (Human Exploration and Development of Space [HEDS]) of new technologies that have significant Shuttle upgrade potential and/or benefits other HEDS activities
- e. Establishing a baseline of approved SSP upgrades and transition these upgrades into the Shuttle elements sustaining activity
- f. Chairing the Space Shuttle Upgrades PRCB (SSUPRCB)

The program elements/projects/directorates that support the Manager, Space Shuttle Program in carrying out the SSP responsibilities are defined in the following paragraphs and are shown in Figures 3-2 and 3-3.

3.4.2 Space Shuttle Program Elements/Projects/Directorates

3.4.2.1 Space Shuttle Management Integration

This program element consists of the effort and resources for the definition and implementation of program baseline CM activities and for the integration of the program's information management policies. CM activities include meeting support operations

and records maintenance, baseline accounting and verification, configuration data base administration and operation, and baseline documentation maintenance. Information management activities include program-wide information systems coordination, development, operation, security, and resources management.

3.4.2.2 Space Shuttle Systems Integration

This program element includes the definition of requirements for the design, interface definition, development, production, test, and integration of the Space Shuttle System; management of analyses required to assure compliance of designs with requirements; and management of the design integration of the SSMEs, SRBs, Reusable Solid Rocket Motor (RSRM), ET, and cargo with the Orbiter Vehicle and with interfacing ground systems. The effort also consists of requirements' definition for integration of the SSP and ISSP, the Day-of-Launch I-Load Update (DOLILU), Version II (DOLILU II) system, Space Shuttle design and operations changes, environmental studies, safety and obsolescence.

3.4.2.3 Space Shuttle Customer and Flight Integration

This program element provides the overall management of payload integration and flight requirements' activities from request for flight assignment through post-flight product delivery. This element is also responsible for the SSP schedule integration to support these activities. Payload integration activities include the documenting of the requirements of the payloads, analyzing and consolidating payload requirements for input to SSV design and development, and providing design requirements and criteria for payloads. The flight requirements activities include the development, assessment, and documenting of the flight complements, the payload priorities, the core equipment, the mission support and unique equipment, number and types of Extravehicular Activities (EVAs), and Development Test Objectives (DTOs), Detailed Supplementary Objectives (DSOs), and Risk Mitigation Experiments (RMEs). Typical SSP schedule integration activities include assessment of the impact of changes on schedules, coordination of schedules analysis among program elements, resolution of schedule conflicts among program elements, and analysis of schedule trends for forecasting purposes. This program element also includes the effort and resources necessary for developing the design requirements for program-designated landing sites, runways, navigation, visual and other landing aids, and related support systems. The effort also consists of definition of requirements for world-wide ferry capabilities of the Orbiter.

3.4.2.4 Space Shuttle KSC Integration

This program element consists of the effort and resources necessary to manage the Operations and Maintenance Requirements and Specifications (OMRS) and Launch

Commit Criteria (LCC) requirements definition/maintenance process. The KSC Integration tasks also include the responsibility for integration of the SSP facility planning, requirements definition and process (i.e., CoF); ground operations integration; management of the Launch Site Requirements/Flow Review process; and coordination and maintenance of the program requirements for Certification of Flight Readiness.

3.4.2.5 Space Shuttle Vehicle Engineering

This program element consists of the effort and resources necessary to produce and maintain the Orbiter Vehicles, Flight Crew Equipment (FCE), GFE, RMS, Shuttle Flight Software, and Portable Onboard Computing (POC) systems for the SSP. Major areas of activity are design, development, fabrication, verification, and integration of the Orbiter subsystems; definition of subsystem and vehicle interfaces; manufacturing, major modifications and checkout of the Orbiter; manufacturing, checkout, and integration of GFE; development, verification, and release of Orbiter and POC software; definition of ground checkout requirements; conduct of test programs; and development of facilities and services to support Vehicle Engineering activities.

3.4.2.6 Space Shuttle Business

This program element includes management of the SSP resources and assessment of program resources, schedules and content within available budgets. Typical resources management subelements are development, analysis, and implementation of the SSP budget, performance of technical/cost trade studies, and analysis of cost per flight and reimbursable requirements. Other typical activities include pricing impacts to manifest changes, contractor rates analyses, and special studies of program efficiencies.

3.4.2.7 Space Shuttle Projects Office, MSFC

The Manager, Space Shuttle Projects Office, MSFC, is responsible for the integration of SSP activities assigned to the MSFC including those related to the SSME, ET, SRB and RSRM.

3.4.2.7.1 Space Shuttle Main Engine

This project consists of the effort and resources necessary to produce and maintain SSMEs. Typical areas of activity are design, development, fabrication, and verification of the main engines and associated Ground Support Equipment (GSE); integration of Government Furnished Equipment (GFE) into the main engines; performance of studies and analyses in support of the main engine and its GSE; and development of facilities and services required to support main engine activities.

3.4.2.7.2 External Tank

This project consists of the effort and resources necessary to produce ETs for the SSP. Typical areas of activity are design, development, fabrication, and verification of the ET

and associated GSE; management of analyses and integration activities relating to ET design and interface design; management of the ET ground verification test program; definition of launch operations and requirements; and development of facilities and services required to support ET activities.

3.4.2.7.3 Solid Rocket Booster

This project consists of the effort and resources necessary for producing SRBs. Typical areas of activity are design, fabrication, development, and verification of the SRB subsystems, integration of the RSRM with SRB subsystems, installation, assembly, checkout of subsystems, performance of major ground tests, and development of facilities and services required to support the SRB project.

3.4.2.7.4 Reusable Solid Rocket Motor

This project consists of the effort and resources necessary to produce the RSRM. Typical areas of activity are design, development, fabrication, and verification of the RSRM; performance of major ground tests; and development of facilities and services required to support the RSRM project.

3.4.2.8 Extravehicular Activity (EVA) Project, JSC

The EVA Project is the controlling authority for establishing the configuration baseline for all EVA activities associated with the Space Shuttle, Space Station, and Advanced Programs. This baseline includes all hardware required to accomplish EVAs from these vehicles. EVA hardware includes the Extravehicular Mobility Unit (EMU), tools, crew aids, and the Simplified Aid for EVA Rescue (SAFER).

3.4.2.9 Shuttle Processing Directorate, KSC

Shuttle Processing includes the effort and resources necessary to provide support to the SSP at the launch site for ground turnaround testing and maintenance, launch, landing/recovery, refurbishment operations, and Orbiter ferry flight preparations. Subelements consist of ground systems and facility planning, and integration; support equipment design and development; test/launch operations planning and implementation; and support operations planning and implementation, including maintenance and test activities.

3.4.2.10 Payload Processing, KSC

Payload Processing includes the effort and resources necessary to provide support to the SSP for payload ground testing from arrival or acceptance of payload hardware

through integration, processing, launch, and de-integration, when required. Subelements consist of ground systems and facility planning, and integration; support equipment design and development; test operations planning and implementation; and support operations planning and implementation including maintenance and test activities.

3.4.2.11 Logistics, KSC

Logistics includes the effort and resources necessary to provide operational support to hardware, support equipment, and processing activities. Subelements consist of the manufacture, procurement, and repair of hardware items; asset management including providing spares and consumables; resolution of hardware and component obsolescence; retention of repair capabilities; hazardous waste management; transportation, shipping, receiving, storage, warehousing and distribution services; training and certification; and supportability engineering and analysis.

3.4.2.12 Flight Crew Operations

This function performed by the Flight Crew Operations Directorate includes the effort and resources necessary to provide the flight crews and flight crew planning for each Space Shuttle mission and the operation and maintenance of NASA JSC aircraft. Typical activities of this element are assignment of flight crew personnel for all Space Shuttle missions; development of flight crew training schedules; operation, maintenance and scheduling of all NASA JSC aircraft; participation in mission simulations and all other crew training activities to maintain flight crew proficiency and mission-specific training; participation in the NASA Space Flight Awareness Program to promote employee motivation and flight safety awareness; and participation by personnel from the astronaut office in all SSP activities for crew safety and other program related areas.

3.4.2.13 Mission Operations

This function performed by the JSC Mission Operations Directorate includes the effort and resources necessary for the development, integration, maintenance, and operation of ground systems related to Space Shuttle mission operations as well as training of flight crews and mission control personnel. Typical activities of this element are establishing and controlling the Mission Control Center (MCC), and Shuttle Mission Simulator (SMS) hardware/software configuration; operation and maintenance of the MCC and SMS; reconfiguring the MCC and SMS for each mission, as required; training MCC personnel; training flight crew personnel; development of flight design products for each mission; development and verification of contingency procedures; development of mission rules; development of flight plans; development of crew procedures and training requirements; development of flight data file and flight crew activities timelines; and

control of each mission from “SRB ignition” through post-landing reconfiguration of Orbiter subsystems, including control of all ground communications with the flight crew.

3.4.2.14 Safety, Reliability, and Quality Assurance (SR&QA)

This function performed by the JSC SR&QA Office includes the matrixed support effort and resources necessary to support the Manager, Space Shuttle Program Safety and Mission Assurance and assure the implementation of requirements applicable to the safety, reliability, and quality assurance aspects of the SSP.

3.4.2.15 Engineering

This function performed by the JSC Engineering Directorate includes the effort and resources necessary for detailed management of Orbiter subsystems engineering and management of the integrated vehicle technical area engineering in support of Space Shuttle Systems Integration, Space Shuttle Vehicle Engineering, and the EVA Project Office, as well as development of new mission support products and capabilities. Typical activities of this element are managing Orbiter subsystem redesign activity, evaluating Orbiter flight performance; designing, verifying, and implementing flight software; and designing and developing cargo integration hardware, extravehicular mobility systems, and robotic systems, as well as being technical area managers.

3.4.3 NASA Centers

The NASA centers are responsible and accountable for the technical excellence and performance of the Space Shuttle projects assigned to their respective centers and to assure that their institutions provide the required support to the SSP. JSC has been designated as the SSP Lead Center and has the responsibility for flight crew operations; mission operations; Extravehicular Activity (EVA); mission support; and design and development of the Orbiter and crew-related GFE. SSC has been assigned responsibility for testing of the SSMEs. MSFC has been assigned responsibility for design and development of the SSMEs, SRBs, RSRMs and ETs. KSC has been assigned responsibility for design, development and operation of the launch and landing site facilities and support equipment; ground turnaround testing and maintenance of the Orbiter; payload processing and installation into the Orbiter; retrieval and disassembly of the SRBs; and the conduct of all prelaunch and launch countdown activities required to launch each Space Shuttle mission.

3.4.4 Program Element/Project Contractors

Major elements of the program are developed by contractors who have specifically assigned responsibilities.

3.4.4.1 Program Element Contractors

3.4.4.1.1 Prime Contractor

The United Space Alliance (USA) is designated the prime contractor for the SSP under the Space Flight Operations Contract (SFOC), the scope of which is defined in NASA Contract NAS9-20000. The USA responsibilities shall include the definition and integration of the design, development, production, and testing of the Space Shuttle System; providing analyses to support the design and integration of the Space Shuttle System; and providing analyses to support the determination of Day-of-Launch (DOL) margins assessments. Other major efforts include the Shuttle prelaunch processing, launch and landing operations, flight operations, Shuttle Systems and cargo integration, sustaining engineering, integrated logistics, and Shuttle flight software development. These responsibilities shall be conducted through the following major elements:

- a. Program Integration. The primary functions of Program Integration are to provide flight management and operate program-level systems and processes that will ensure safe, efficient Shuttle operations, to analyze program products for compliance with requirements, and to assess and resolve integration issues. Specifically, Program Integration responsibilities shall provide the SFOC infrastructure in the activities for the areas of payload/cargo engineering, system integration, management integration, configuration and verification management, technical information systems, and facilities/property/security management integration.
- b. Flight Operations. Flight Operations is responsible for the preparation and execution of the SSP flight operations and ISS mission operations. This responsibility includes the management and integration of processes for flight operations, and comprises the development, implementation, and maintenance of process integrity plans, operational readiness, and support to realtime mission execution and mission preparation tasks.
- c. Ground Operations. Ground Operations is responsible for flight element processing, integrated vehicle processing, launch operations, landing operations, recovery operations, Launch Processing System (LPS) operations, maintenance and sustaining engineering, Integrated Work Control System (IWCS) sustaining engineering, safety and mission assurance, communications, logistics, and ground systems and facilities operations, maintenance, and sustaining engineering.
- d. Hardware/Software. The hardware and software responsibilities are to be executed in two phases. For Phase 1, the USA is responsible for the Orbiter production and Backup Flight Software (BFS) and has total accountability

for the Orbiter and BFS technical, flight hardware production and deliveries, design engineering support to the ground, flight and off-line operations, and maintenance activities. The USA is supported in these areas by the Orbiter subcontractor, Boeing Reusable Space Systems (B-RSS). In Phase 2 the USA will have the same responsibilities for the remaining Shuttle flight hardware and software elements, (i.e., the SSME, ET, RSRM, SRB, and Primary Flight Software).

- e. Safety and Mission Assurance. Safety and Mission Assurance (S&MA) is responsible for the Shuttle Systems safety, reliability, quality, and mission assurance environments for the USA. The S&MA element provides an independent S&MA function within the above elements, which allows any safety issue to be independently elevated to the program level.

The prime contractor uses subcontractors in the execution of its responsibility, most notably in the area of Orbiter Vehicle and overall systems integration support. B-RSS provides this support and is specifically responsible to USA for Orbiter design, certification, production, sustaining engineering, and assigned modifications as well as general integration of the Space Shuttle Systems, including cargo.

3.4.4.2 Project Contractors

3.4.4.2.1 Space Shuttle Main Engine Contractor

Boeing Rocketdyne Division is the SSME contractor and is responsible to the Manager, Space Shuttle Main Engine Project, MSFC for the design, development, production, and testing of the SSMEs. In addition, Boeing Rocketdyne is responsible for system testing of the SSMEs.

3.4.4.2.2 External Tank Contractor

Lockheed Martin Manned Spaceflight Systems is the ET development contractor and is responsible to the Manager, External Tank Project, MSFC for the design, development, production, and testing of the ET.

3.4.4.2.3 Reusable Solid Rocket Motor Contractor

Thiokol Corporation is the development contractor for the RSRM and is responsible to the Manager, Reusable Solid Rocket Motor Project, for the design, development, production, and testing of the RSRM.

3.4.4.2.4 Solid Rocket Booster Contractor

Integration of the RSRM into the SRB was accomplished initially by MSFC. After the initial development effort was completed, United Space Boosters Incorporated (USBI)

was selected to perform the SRB integration task, and was given design responsibility for the SRB hardware. This responsibility has subsequently been transitioned to USA under the SFOC contract Phase 2 (reference Paragraph 3.4.4.1.1d).

3.5 FACILITY UTILIZATION

The major types of facilities used during the development, production, and operational phases of the SSP are those for development testing, vehicle manufacturing and assembly, SSME testing, RSRM testing, and launch and retrieval. Maximum use of existing facilities is made by both the contractors and the government.

Research and development activities are conducted at the technological facilities of the NASA field centers and other government facilities. Orbiter final assembly and checkout and some major modifications are conducted at government-owned, contractor-operated facilities at Palmdale, California, or at other suitable facilities approved by NASA.

Final assembly and checkout of the ET is conducted at the Michoud Assembly Facility. Development, manufacturing, and component testing of the SSMEs are conducted at the facilities in Canoga Park, California. NASA's Stennis Space Center (SSC) is utilized for SSME system testing. The RSRM development, manufacturing, and test firing are conducted at Thiokol Corporation, located at Brigham City, Utah. The SRB systems integration and assembly activities are conducted in the Vehicle Assembly Building at KSC.

Edwards Air Force Base will be used as an alternate landing site for missions launched from KSC and will be designated as the primary landing site as required to assure landing safety.

3.6 DEPARTMENT OF DEFENSE INTERFACE

A major program interface exists between the NASA and the DOD to the extent that joint ventures continue and is documented in the NASA/DOD Memorandum of Understanding (MOU), Management and Operation of the Space Transportation System. The United States Air Force is designated as the implementing organization for the DOD. Interfaces have also been established to coordinate detailed technical, security, and budgetary matters on a case-by-case basis.

3.7 PROGRAM RESOURCES

NSTS 07700, Volume XV, Resource Management Policy and Requirements, provides the policy, requirements, and procedures for Space Shuttle Program Resource Management. Program resource requirements are defined in Program Operating Plans (POPs).

The SSP budget will be submitted through the center directors to the Manager, Space Shuttle Program, who will have total funding authority for the program. Following the final budget mark by the Lead Center Director, the centers will submit a mark implementation plan which reconciles budget and program content and which will also be reviewed and approved by the Manager, Space Shuttle Program.

THIS PAGE INTENTIONALLY LEFT BLANK

FIGURE 3-1
SPACE SHUTTLE VEHICLE CONFIGURATION

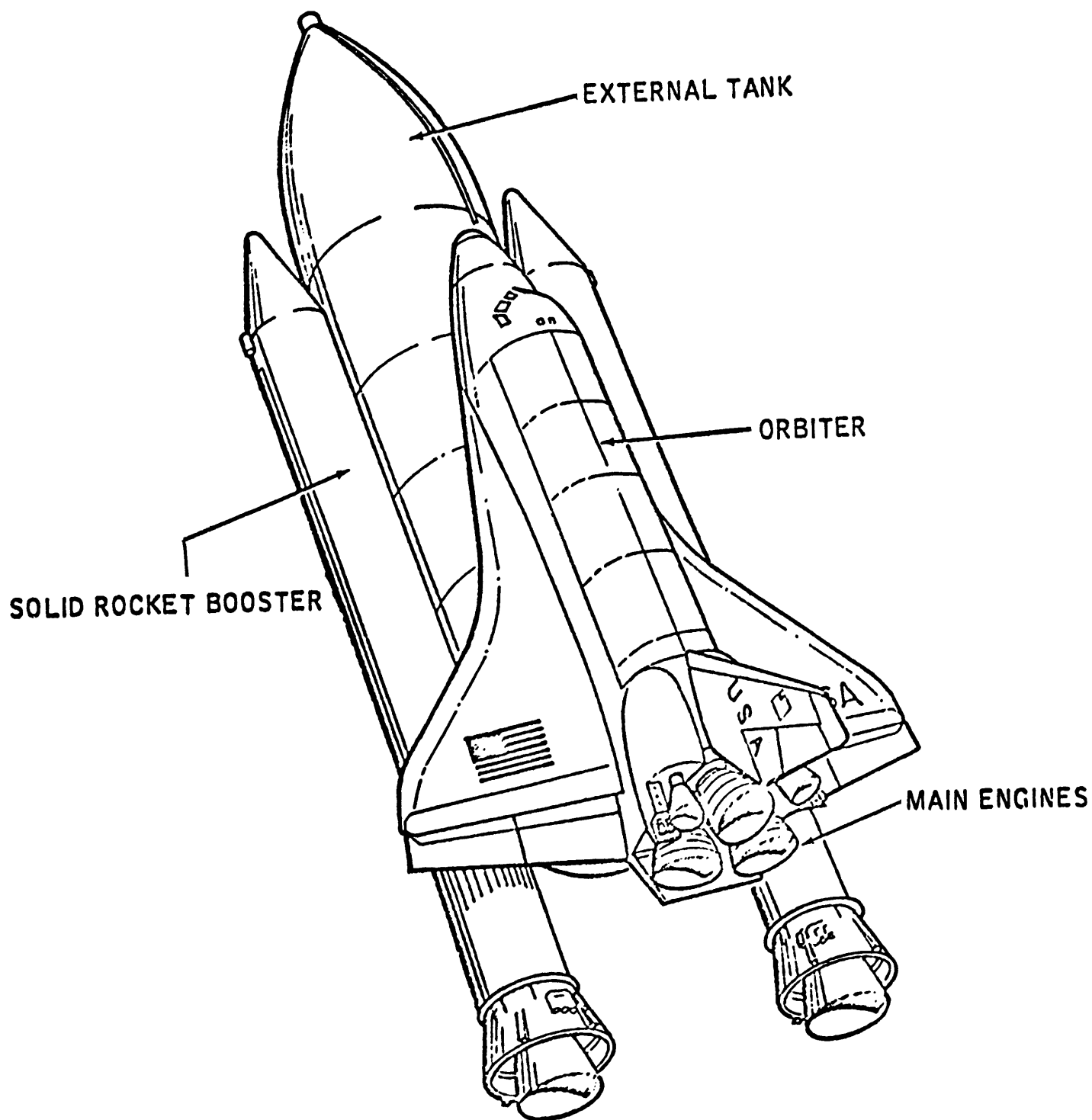


FIGURE 3-2
SPACE SHUTTLE PROGRAM ORGANIZATION

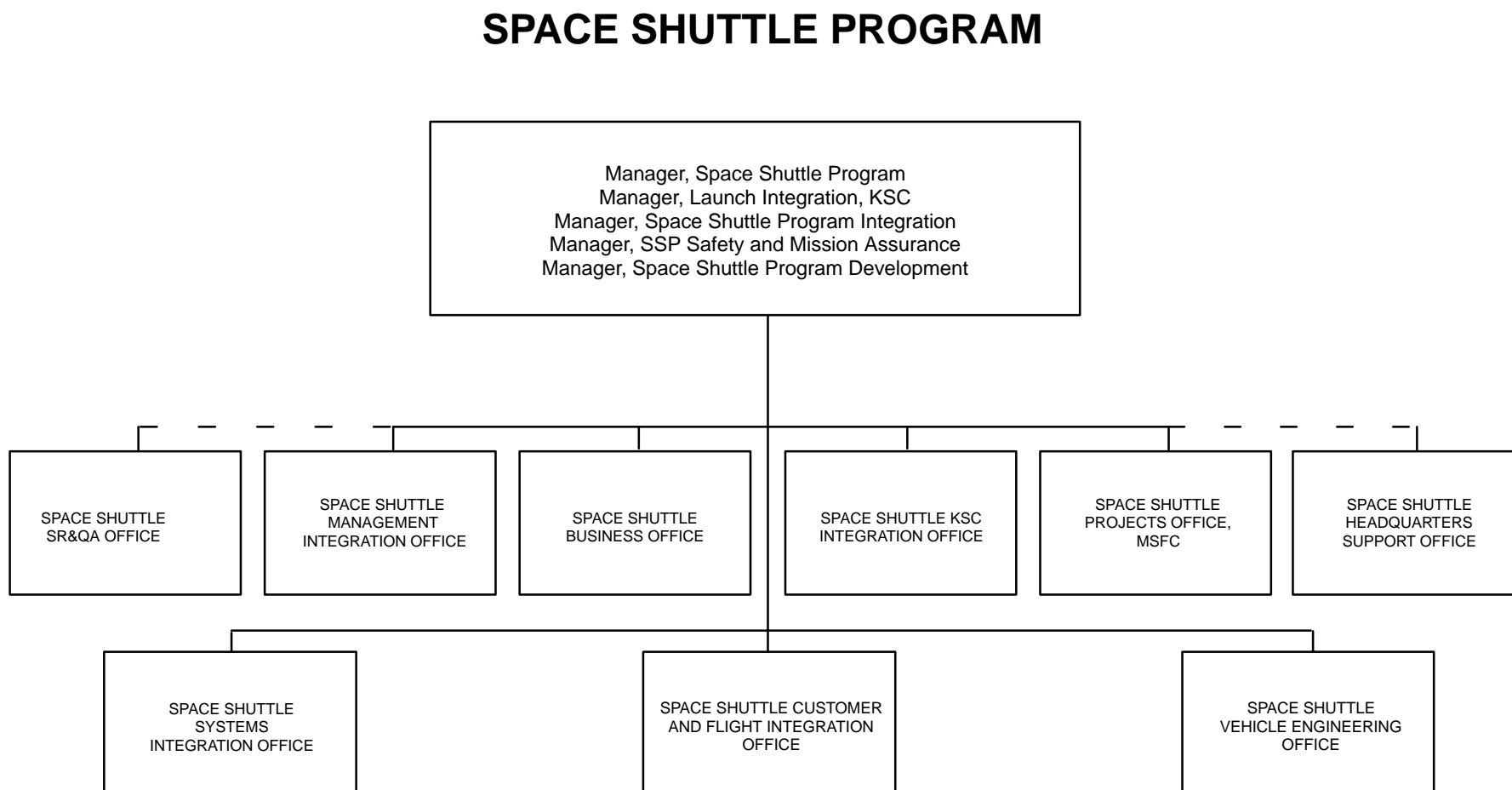
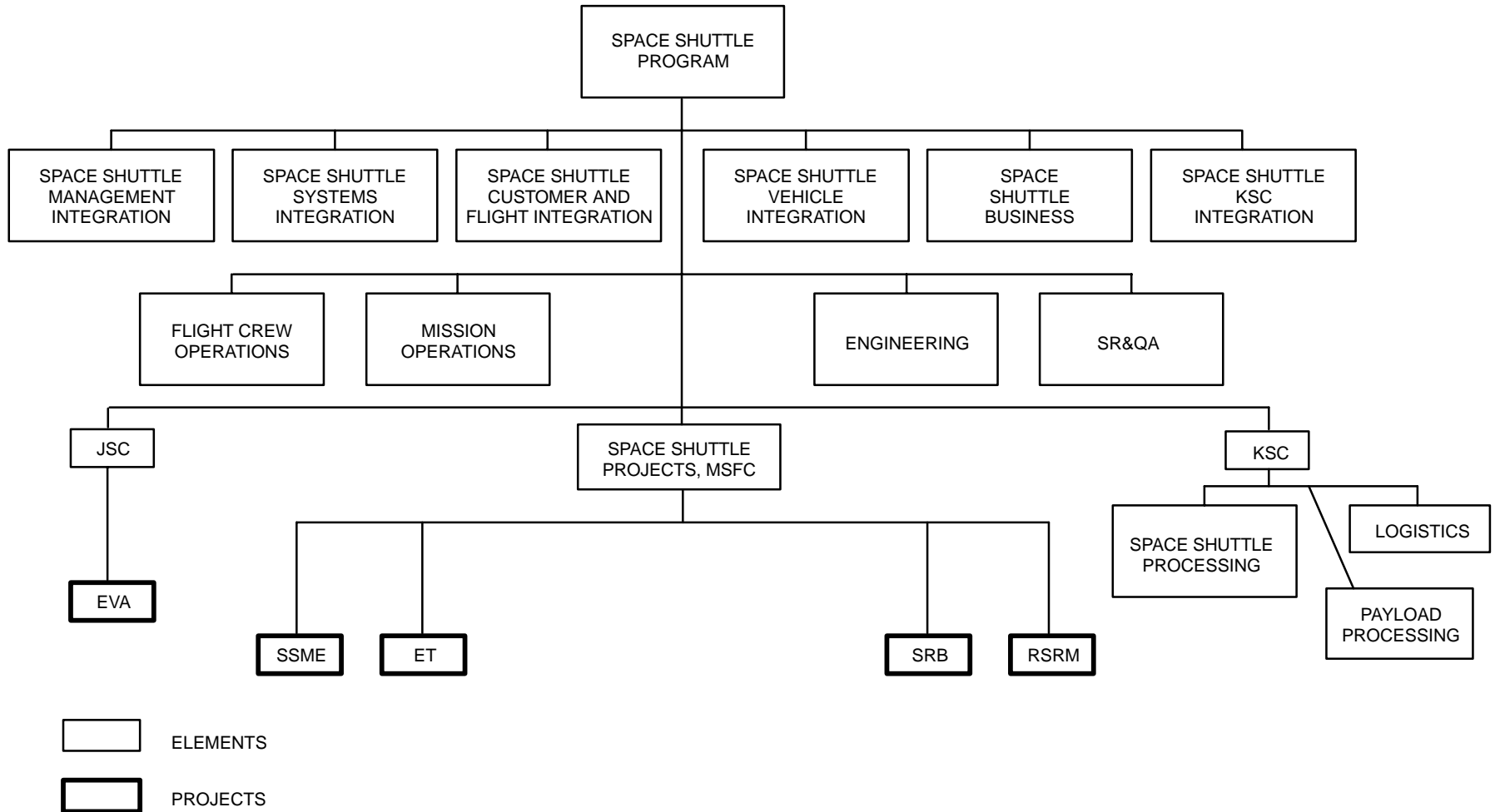


FIGURE 3-3

SPACE SHUTTLE PROGRAM ELEMENTS/PROJECTS



THIS PAGE INTENTIONALLY LEFT BLANK

4.0 SPACE SHUTTLE PROGRAM DEFINITION AND REQUIREMENTS BASELINE

The program requirements which constitute the requirements baseline controlled by the Manager, Space Shuttle Program, are contained in this and subsequent volumes of NSTS 07700. These volumes and their content are defined below. The Office of Primary Responsibility (OPR) for each of these volumes is documented in NSTS 07700, Volume IV, Configuration Management Requirements. The volumes are discussed under the categories of management requirements and technical requirements.

4.1 MANAGEMENT REQUIREMENTS

The management requirements for the SSP are documented within the volumes of NSTS 07700. Following is a brief description of the information contained in each of these volumes.

4.1.1 Volume II - Program Structure and Responsibilities

This volume consists of two books. Book 2, Space Shuttle Program Directives includes SSP directives, policy, and agreements that implement the tasks not defined in other program requirements. Book 3, Space Shuttle Program Interface Agreements is a collector of Space Shuttle Program Interface Agreements among SSP participants. It also includes other interface agreements of significance to the SSP.

Book 1, Program Work Breakdown Structure, retired per PRCBD S040129M, dated 7/19/93.

Book 4, Orbital Flight Test Operations Directives, retired per PRCBD S040349C, dated 1/29/88.

4.1.2 Volume III - Flight Definition and Requirements Directive

This volume directs the Space Shuttle flight assignments and establishes the flight characteristics and configuration requirements for near-term flights to provide a single consistent reference for planning, hardware, and support elements. Launch dates for follow-on flights and program milestones are also specified within this volume.

Described in this volume are the Program Freeze Points, those points in time when the cargo, vehicle hardware and software, launch site flow, and other key aspects of a flight have been defined and baselined.

4.1.3 Volume IV - Configuration Management Requirements

Volume IV consists of two books. Book 1 defines the configuration management requirements, responsibilities, and procedures for the SSP. Configuration management

includes identification, documentation, accounting, change control, and verification functions performed to ensure that the “as-built” configuration of a particular item of hardware/software is in conformance with an established baseline and authorized changes. Book 1 also contains requirements for configuration identification including baseline definition and interface control; configuration change control and processing; configuration accounting methods; configuration verification through the Program Requirements Review, the Shuttle System Requirements Review, Preliminary Design Reviews, Critical Design Reviews, acceptance reviews, Design Certification Reviews and readiness reviews; Configuration Inspections; GSE Design Reviews and other reviews; and requirements for reporting the configuration status of all contractor equipment and GFE. Book 1 also establishes the requirements for configuration control boards, identifies the membership of such boards, and provides instructions for the preparation of forms, documents, and drawings that are required to transmit configuration management information. Book 2, Configuration Deviations/Waivers, contains current deviations/waivers which do not meet the Space Shuttle Configuration requirements, as defined in Book 1.

4.1.4 Volume V - Information Management Requirements

This volume defines information product requirements applicable to each SSP element. Volume V defines the responsibilities for generating, processing, and safeguarding information, defines information types, provides lists of required information products, and specifies the content and format of various types of documentation. Volume V establishes information management systems requirements and policies for the SSP.

4.1.5 Volume VI - Flight Support Equipment (FSE) Management

This establishes the FSE management requirements, responsibilities, and procedures for the SSP. Typically, FSE includes space suits, extravehicular life support equipment, food, bioinstrumentation, personal communications equipment, photographic equipment, and miscellaneous mission operational aids. Management requirements include design and acceptance reviews, status reviews, and configuration control. Technical requirements include end item specifications; interface requirements; safety, reliability, and quality assurance requirements; verification requirements; and materials requirements. A guide for the selection of documentation potentially applicable to management of FSE is provided for use by supplying organizations as well as a list of documents applicable to FSE procurement.

Book 2, Inter-Project Hardware Accountability, retired per PRCBD S041614A, dated 1/05/89.

4.1.6 Volume VII - Commonality Management

Retired per PRCBD S00838A, dated 3/14/88.

4.1.7 Volume XI - System Integrity Assurance Program Plan

This volume describes the System Integrity Assurance Program Plan requirements relative to configuration, maintenance, operations, and analysis activities necessary to assure safe and reliable operation of the Space Shuttle System. Volume XI requires development of comprehensive maintenance, inspection, time/age/cycle, and refurbishment requirements to assure that Space Shuttle hardware retains design reliability, safety, and performance for the life of the program. The volume also requires closed-loop accounting of the implementation of requirements and establishment of overall information regarding trend analysis, evaluation of requests for design changes, exceptions, and waivers to support a risk decision process.

4.1.8 Volume XIII - NASA Support to VAFB Launch and Landing Site Development and Activation

Retired per PRCBD S03856H, dated 6/28/88.

4.1.9 Volume XV - Resource Management Policy and Requirements

Volume XV contains the requirements which have been established for resource management for the SSP. The purpose of this volume is to provide policy and implementation procedures to be utilized by all elements of the program involved in resource management. This volume provides a comprehensive treatment of all resources and financial management processes including planning and implementation of the POPs and budgets (SSU, APA, and C of F) for the total program, periodic status reviews with projects, reporting of resource management performance against plans (including specific reporting requirements for the projects and supporting elements), and reporting to management. The volume also provides policy and implementing procedures for conduct of the resources control and distribution activities, including the procedures for requests and approval of resource authority from NASA Headquarters, preparation of the supporting documentation, and development of commitment, cost, and obligation plans.

4.1.10 Volume XVI - Space Shuttle Program/Space Station Freedom Program Program Management Plan

Retired per PRCBD S052558E, dated 7/29/94.

4.2 TECHNICAL REQUIREMENTS

Technical requirements have been established in the areas of mission operations; ground operations; flight and ground systems; integrated logistics; payload accommodations; safety, reliability, and quality assurance; and computer systems and software.

4.2.1 Volume VIII - Operations

This volume defines the fundamental concepts and requirements for Space Shuttle flight operations and the responsibilities for implementation. Operational requirements are defined for the Space Shuttle/flight operations including those for flight design, flight crew procedures development, flight crew and flight controller training, flight planning, mission control, payload operations, Shuttle carrier aircraft operations, and facilities.

4.2.2 Volume IX - Ground Systems Integration and Operations

Volume IX establishes and defines SSP and project-level integration functions required to assure adequacy and compatibility of the Space Shuttle launch and landing complexes. The document describes the requirements and functions to assure technical integration, vehicle flight worthiness, and safe processing of the SSV. It includes the SSP requirements for integration in the planning, equipment procurement, design analysis and review, flight element processing, countdown, launch, retrieval/recovery turnaround and reuse. The document also defines responsibilities of the operational interfaces. It is effective from the time of element hardware preliminary design through activation, ground processing, launch, recovery, and ground turnaround for initial operations at the launch and landing sites.

4.2.3 Volume X - Flight and Ground System Specification

Volume X, which consists of seven stand-alone books, contains the technical requirements for the Space Shuttle flight and ground system and forms the basis for control of these requirements. Book 1, Requirements, specifies the Space Shuttle Flight and Ground Systems (KSC operational ground support only) requirements to be used by all NASA and contractor organizations. Book 2, Environment Design, Weight and Performance, and Avionics Events, defines the design requirements for natural environment, induced environment, weight and performance control, and avionics terminal events associated with the Shuttle System. Book 3, Requirements for Runways and Navigation Aids, documents the specific SSP design requirements for the Orbiter landing sites and facilities used in support of Space Shuttle operations. Book 4, Active Deviations/Waivers, contains current deviations/waivers which do not meet the Space Shuttle Flight and Ground Systems requirements as stated in Book 1. Book 6, Retired Deviations/Waivers retains a record, for historical purposes, of those deviations/waivers against Book 1 which are no longer applicable to the SSP. Volume X shall be the source for the expanded definition of project-level requirements for all elements of the Space Shuttle System. Such requirements shall be documented in Contract End Item specifications, and contractor procurement specifications.

Book 5, FMEA/CIL Deviations/Waivers, retired per PRCBD S004600G, dated 6/23/93.

Book 7, Rescinded Deviations/Waivers, retired per PRCBD S004600J, dated 10/21/93.

4.2.4 Volume XII - Integrated Logistics Requirements

Volume XII establishes the logistics requirements to be used by all elements of the SSP beginning with the development and production phase and continuing through the operational phase. The document provides directions and controls required to fulfill the logistics requirements of the program by stating the logistics objectives and establishing the policy and concepts to be observed. Volume XII also indicates the logistics organizational responsibilities at the program management and projects management levels, and includes logistics analysis at the support requirements and optimum-repair levels. The document covers the maintenance function, defining the organizational, intermediate, and depot levels. The supply concept is included as well as transportation and fluids.

4.2.5 Volume XIV - Space Shuttle System Payload Accommodations

Volume XIV describes the capabilities of the Space Shuttle System to accommodate payloads. It reflects the baseline Space Shuttle System as it is presently configured and is the official source of SSV capabilities to deliver payloads into orbit and return them to Earth, as well as the services that the Space Shuttle provides to payloads and the means by which payloads can avail themselves of these services. Volume XIV also contains the official set of standard interface provisions between the Orbiter and payloads. By utilizing these data, payload planning and design studies can be conducted against the controlled set of SSV capabilities and interface provisions and requirements. The volume also includes performance data and information on subsystems, environments, and support equipment.

4.2.6 Volume XVIII - Computer Systems and Software Requirements

Volume XVIII, consisting of three books, establishes the SSP requirements for computer systems, simulators, and software. Book 1, Allocation of Computational Functions defines developmental and operational computational functions and allocates them among computational facilities to be implemented by the appropriate program elements. Similarly, Book 2, Allocation of Simulation Functions defines design, verification, and operational support simulation functions and allocates them among simulation facilities to be implemented by the appropriate program elements. Book 3, Software Management and Control establishes software development, management, documentation requirements, and defines the methods by which software will be managed and controlled.

4.2.7 Safety, Reliability, and Quality Assurance

The safety, reliability, and quality assurance requirements of Volume X have been established for the SSP and have been tailored based on experience in other programs.

The Volume X requirements also update/modify the requirements of NSTS 5300.4 (1D-2), Safety, Reliability, Maintainability and Quality Provisions for the Space Shuttle Program.

4.3 SPACE SHUTTLE PROGRAM BASELINE

The baseline is included in, attached to, or referenced from the foregoing volumes of NSTS 07700. The procedures for baselining and changing the requirements are described in NSTS 07700, Volume IV.

5.0 RISK MANAGEMENT

Risk management is an integral element of the overall SSP management process. The SSP risk management process is structured to integrate the extensive program requirements and procedures in such a way as to assure potential issues and hazards are identified, analyzed, and mitigated throughout all program activities. The use of disciplined CM of databases, verification and certification processes, use of certified analytical and test techniques, and the use of formal review and acceptance processes, form the basis of the SSP risk management process. Timely and effective risk mitigation provides the SSP with high levels of safety, mission success, improved availability/supportability, and reduced schedule and cost issues.

While all attributes required for SSP success are considered within the scope of the SSP risk management process, safety shall be the overarching consideration in all SSP decisions and shall not be compromised under any circumstance. This emphasis and focus on safety extends to any potential risk involving the public, flight crews, employees, and SSP assets.

5.1 OBJECTIVES

The SSP risk management objectives are;

- a. Ensure organized, methodical, decision-making processes are utilized to identify and assess potential risks and effectively eliminate or mitigate them.
- b. Ensure this process is proactive in nature and structured to provide early insight through appropriate collection and use of data, implementation of proven analytical techniques, and thorough management review and verification.
- c. Ensure safety is maintained as the overarching objective in all SSP decisions and is not compromised under any circumstance. This emphasis and focus on safety extends to any potential risk involving the public, flight crews, employees, and to SSP assets.
- d. Ensure that the integrated effect of various risk categories (safety, technical, cost, schedule, etc.) is properly analyzed and evaluated.

5.2 SCOPE

Risk management processes shall be applicable and implemented across all aspects and activities associated with execution of the SSP. Specific requirements associated with risk management processes shall be documented within NSTS 07700. Program elements and projects may require and implement additional risk management processes as required.

5.3 RESPONSIBILITIES

The Space Shuttle Program Manager has overall responsibility for establishing and implementing the SSP risk management processes. The Manager, Space Shuttle Program Safety and Mission Assurance is assigned responsibility for the management and oversight of the risk management process and is identified as the OPR. Safety risk management products shall be managed as specified in NSTS 07700, Volume II - Book 2, SSP Directive 110.

Each program element and project is responsible for the establishment of procedures that implement risk management processes within their specific SSP element and provide insight into the infrastructure that supports the SSP risk management processes.

5.4 RISK MANAGEMENT PROCESSES

SSP requirements contained within NSTS 07700 provide definition and process requirements for the implementation of risk management. Included are provisions for identifying, analyzing, tracking and controlling safety, technical, cost and schedule risks within the SSP. It incorporates a specific set of design, development, test/verification, and operation requirements within a singular document structure. The risk management practices embedded in the SSP documentation and procedures constitute a very extensive effort that maintains a high level of program success. This document and associated documents are under the authority of the PRCB, which provides SSP CM control. The requirements specified within NSTS 07700 are applicable to all SSP elements and projects.

5.4.1 Risk Assessment Methods and Tools

Each program element and project shall implement risk-based analyses and concepts throughout the life cycle of the program. Various quantitative and qualitative risk assessment tools may be utilized to identify and characterize potential issues. These assessments shall involve the use of accurate and verified data, when available, and the implementation of proven analytical techniques. The qualitative and quantitative methods/tools may employ deterministic or probabilistic techniques as appropriate and practical. Specific emphasis shall be placed on critical manufacturing, assembly, maintenance, and operational processes.

The use of various industry standard quantitative probabilistic and statistical tools is encouraged for use in developing risk assessments. These have varying degrees of applicability across program elements to relatively analyze and present ranked potential risk conditions to the Shuttle Program. Statistical and probabilistic analysis tools may be incorporated as an integral part of the program plans and activities providing additional insight into process variability, projected reliability and potential risk. Specific

probabilistic risk analysis techniques may be introduced and used by supporting organizations in discussions of potential risk.

5.4.1.1 Data/Information Sources

All data and information sources shall be verified for accuracy before being utilized or implemented in any program analysis or decision process. Formal databases utilized by the SSP to determine flight readiness and mission success are documented in NSTS 07700, Volume V, Appendix C.

NSTS 07700, Volume XI, establishes the Program Compliance Assurance and Status System (PCASS). The PCASS compiles data from the element projects to provide SSP management and the project elements with visibility and access to program critical data, including requirements status, problem data, trends, risk decisions, hazards, critical item history, and Critical Items List (CIL) data. This system, together with its supporting project element systems, facilitates a closed-loop management system that allows originators, program and project element management, SR&QA, and other interested parties to determine the status of requirements, problems, trends, and critical item actions.

5.4.1.2 Quantitative Risk Assessment Tools

Quantitative analytical processes shall be used throughout the program to measure and determine conformance to specified requirements. Technical, cost, and schedule variances are determined and mitigated based upon these processes. Acceptability of manufacturing, processing, and operation of hardware and software elements is based upon quantitative assessments compared to pre-determined analytical expectations. Various quantitative probabilistic and statistical tools are also employed across all program elements to analyze process variability and are incorporated into risk mitigation decisions.

Statistical and probabilistic analysis tools shall be an integral part of the program plans and activities. Statistical tools provide additional insight into process variability, and probabilistic tools provide additional insight into projected reliability and risk. Probabilistic Risk Assessment (PRA) techniques may be implemented by supporting organizations in discussions of potential risk where appropriate and practical. Critical processes shall employ statistical variance and trend analysis as appropriate to maintain process control.

SSP elements are permitted to implement the appropriate statistical-based quantitative risk assessment processes commensurate with the nature of potential risk and the processes utilized by the element. A variety of tools have been proven to be very effective in evaluating and ranking potential risks. The following are some of the primary statistical-based quantitative methods available to be used by the SSP:

- a. Statistical Process Control (SPC) - SPC is a statistical tool that has been formally implemented by various SSP elements. This methodology is used as a standard practice to analyze the variability of critical processes. Statistical control techniques may be used to monitor critical processes and characterize potential risk based upon statistical variance and trend analysis. SPC is the most important tool used in determining process variability. Reducing and controlling process variability translates to reducing and controlling risk.
- b. Fault Tree Analysis (FTA) - FTA (NSTS 22254, Methodology of Conduct for Space Shuttle Program Hazard Analyses) is a deductive system analysis tool used to determine how a given system event (usually a failed state and referred to as the top event) can occur. FTA quantifies the likelihood or probability of the top event occurring based on the probabilities of each basic event included in the fault tree. FTA can model any type of risk (for example, safety, maintainability, etc.). The SSP utilizes this tool quantitatively in support of PRAs and reliability and maintenance assessments.
- c. Probabilistic Risk Assessment - PRA assigns a series of incremental event probabilities to a set of logical, systematic, and well-defined activities to provide the analyst with a system level perspective of the relative probability of event occurrence. This quantification process is then used to identify, measure, evaluate, and track the development of the possible risk. This process is also applied to potential events associated with certain natural phenomena such as orbital debris impact or man-made activities.
- d. Trend Analysis - Trend Analysis is the application of statistical techniques to a series of data collected related to a given process. Its purpose is to proactively identify process variation prior to actual occurrence of an anomaly. This is a critical element of the risk management process as it permits management action to mitigate in the early stage of the risk development. It also serves to identify individual process elements as candidates for review and possible further analysis based on activity, trend, and/or a risk measure.

5.4.1.3 Qualitative Risk Assessment Methods and Tools

Qualitative risk assessment is utilized in addition to quantitative measurement processes. Qualitative risk assessment methods shall utilize sound engineering judgment and be substantiated to the maximum extent possible with analytical information including incorporation of design, test, or historical performance data.

Specific SSP requirements associated with qualitative risk assessment processes include Failure Modes and Effects Analysis (FMEA), the FMEA-derived CIL (NSTS 22206, Requirements for Preparation and Approval of Failure Modes and Effects Analysis [FMEA] and Critical Items List [CIL]), and the hazard analysis, with its resultant

Hazard Report (NSTS 22254). A FMEA is an item-by-item evaluation of consequences of individual failures within a system. It also evaluates the severity and/or risk for each consequence. The hazard analysis provides a line item listing of all system hazards, with subjective evaluations of severity, probability, and risk for each.

NSTS 16007, Shuttle Launch Commit Criteria and Background Document, is also used as a qualitative risk assessment method to provide definition of the safe vehicle configuration for launch and pre-planned decisions to minimize the risk of constraints to launch.

Various industry standard qualitative risk assessment methods are permitted and implemented with varying degrees of applicability across program elements. The following lists some of the often used qualitative methods used by the SSP:

- a. Fault Tree Analysis - This tool can also be utilized in a qualitative fashion to provide risk assessments via a list of events that can lead to the top event. FTA can model any type of risk (for example, safety, maintainability, etc.). The SSP often utilizes this tool qualitatively in problem investigations, anomaly dispositions and in the analysis of Flight Hazard Reports.
- b. Sneak Analysis - Sneak analysis is a technique for analyzing a design and identifying latent conditions not caused by component failures which can inhibit desired functions or cause undesired functions to occur. The sneak analysis technique is a formalized, rigorous, and orderly process of assuring that unintended conditions have been excluded from the system.
- c. Common Cause Failure Analysis (CCFA) - A CCFA is used to determine if there are combined multiple failures of components and operator errors that result in degradation or disablement of a system and are set up by a common event or causative mechanism.
- d. Process FMEA - A process FMEA is designed to analyze the risk of operational processes including manufacturing, assembly, and flight and ground processing. It analyzes potential manufacturing and processing anomalies to the lowest possible causal level within the manufacture of the parts. This provides a method to proactively identify the potential failure root causes and mitigate or improve the process before implementation.
- e. Assembly Hazard Analysis (AHA) - An AHA is an assembly process to identify any potential for error in the assembly process and provides insight for proactive mitigation prior to and in conjunction with setting up the assembly procedures. Program requirements associated with critical process inspections prior to initiation are related to this analytical process. The ultimate goal of AHA is to incorporate can't fail techniques in the design and assembly process such that errors cannot occur.

- f. Maintenance Assessments - Some of the risk-based qualitative maintenance assessments utilized by the SSP are:
 - 1. Reliability Centered Maintenance: Components with the highest failure potential are evaluated for appropriate preventive maintenance planning and for ease of maintenance (closely coupled to human factor analysis). It reduces the chance of introducing new risk due to collateral damage.
 - 2. On Condition Maintenance (OCM): Components that have a history of no recorded anomalies are analyzed for possible reduction in maintenance testing and checkout. Implementation of OCM reduces the chance of human error by reducing the exposure to maintenance personnel and reducing wear associated with routine handling.

5.4.1.4 Categorization/Ranking Processes

NSTS 08198, Safety and Obsolescence (S&O) Vulnerability Assessment Methodology, and NSTS 37310, Space Shuttle Program Safety Risk Ranking Methodology, provide methodologies for the categorization and ranking of SSP risk.

S&O vulnerability assessment methodology provides a means to evaluate and prioritize the threat of those critical items whose loss due to near-term supportability or obsolescence issues would reduce or eliminate the ability to meet the SSP operational schedule.

SSP improvements associated with safety are evaluated for merit and acceptability for incorporation into the SSP. Ranking the candidates in a relative order of the risk to be eliminated or reduced yields the greatest safety improvement for resources applied. The risk ranking methodology baselined in NSTS 37310 provides a method to rank candidate safety improvements.

5.4.2 Technical and Safety Risk

5.4.2.1 Engineering Risk

Engineering risk is managed through extensive design and verification requirements. The major goal throughout the design phase is to ensure inherent safety through the selection of appropriate design features such as fail operational/fail safe combinations and appropriate safety factors. Hazards are eliminated by design where possible. Known hazards that cannot be eliminated through design selection are reduced to an acceptable level through the use of appropriate safety devices, warning devices or special procedures. Flight hardware and software undergo a comprehensive certification program of qualification tests, major ground tests, and other tests and/or analysis

required to determine that the design meets requirements. During the design phase, the primary safety risk identification and assessment tools used by the SSP are the FMEA/CIL and the Hazard Analysis (documented as Hazard Reports). NSTS 07700, Volume V, requires submittal of FMEA/CIL and Hazard Reports for program approval. All submittals require review by the System Safety Review Panel prior to SSP acceptance. Additionally, in support of Critical Design Reviews (CDR), NSTS 07700, Volume V requires submittal of items such as the Manned Spacecraft Criteria and Standards Implementation Report, Acceptance Test and Checkout Requirements Document and the Electronic, Electrical, Electromechanical Parts Where Used Status Report.

5.4.2.2 Process Risk

Managing process risk begins with establishing effective quality assurance requirements. NSTS 5300.4(1D-2) establishes common Safety, Reliability, Maintainability, and Quality Assurance (SRM&QA) provisions for the SSP. It is essential for the SSP risk management process because it defines the SRM&QA activities required by the SSP. This document defines what constitutes a critical process and identifies requirements associated with critical process training and fabrication control. The SSP requires in NSTS 07700, Volume V that a list of critical processes be maintained and furnished to the program upon request. Periodic reviews of these processes are conducted to ensure that a high standard of quality is maintained.

NSTS 07700-10-MVP-01, Shuttle Master Verification Plan - Volume I, General Approach and Guidelines, establishes the basis for the turnaround maintenance and assembly requirements for the program. The maintenance and assembly philosophy is to achieve confidence in vehicle performance for safety and mission success through planned maintenance or assembly procedures. Maintenance and assembly requirements are specified in NSTS 08171, Operations and Maintenance Requirements and Specifications Document (OMRSD). The OMRSD is the single authoritative source for operations, maintenance, data and analysis requirements and specifications that are necessary to maintain and verify the system element, subsystem, or line replaceable unit/maintenance significant item operational readiness.

5.4.2.3 Operational Risk

The operational risk management process affords program officials with the opportunity to comprehend and understand the scope and extent of operating the Space Shuttle Vehicle safely and efficiently. In support of this objective, NSTS 5300.4(1D-2) requires a closed-loop system for collecting, analyzing, and recording all reported hazards. Space Shuttle LCC, Flight Rules, Crew Procedures, and the OMRSD are important operational documents because they support the risk mitigation procedures addressed in the FMEA/CIL and Hazard Analysis.

The LCC provides detailed performance criteria for committing the vehicle and ground systems for launch and minimizes realtime rationalization of those requirements. The overall philosophy for LCC, documented in NSTS 16007, is to launch a configuration that supports mission objectives and vehicle and crew safety consistent with maximizing launch probability. LCC is developed to assure that flight and ground systems are configured and performing as required to support Shuttle Vehicle and crew safety and mission success prior to launch.

NSTS 12820, Space Shuttle Operational Flight Rules, outlines preplanned decisions designed to minimize the amount of realtime rationalization required when non-nominal situations occur from the start of the terminal countdown through crew egress. Mission success related realtime decisions are made within the framework of the established Space Shuttle operating base.

Crew procedures are documented in the Flight Data File (FDF). The FDF is the total onboard complement of procedures, documents (timelines, check-lists, maps, charts, decals, POC software, etc.) and related aids (FDF support hardware, POC removable media, etc.) available to the crew for the safe and efficient operation of the SSV and manifested payloads.

To minimize work during ground turnaround operations and reduce the risk of maintenance incurred problems, flight operations and active in-flight validation or checkout is accomplished in accordance with the OMRSD, File IX, Shuttle Data Collection and Analysis Requirements.

5.4.3 Cost Risk

Cost thresholds are established by the SSP and documented in NSTS 07700, Volume IV. Prior to flight hardware/software acceptance, the SSP must authorize any change, except mandatory mission reconfiguration or safety of flight changes, that exceeds identified cost thresholds. After flight hardware/software acceptance, all configuration changes require authorization by the SSP or the delegated project.

5.4.4 Schedule Risk

NSTS 07700, Volume III defines the program content and Space Shuttle flight definition required to allow consistent planning and resource control, including flight program definition and planning, ground maintenance planning and scheduling, program freeze points, and program schedule requirements.

Program freeze points are defined as those points in time when the cargo, vehicle hardware and software, launch site flow and other key aspects of a flight have been defined and baselined. Subsequent to these points, only mandatory changes to the hardware,

software or affected documentation will be permitted. Mandatory changes are those necessary to ensure crew/vehicle safety, mission success, and/or the accomplishment of primary subsequent freeze point schedules, including launch.

The SSP schedule document, NSTS 08178, Space Shuttle Program Schedules, provides the baseline and status of key program and project level milestones. The SSP schedule document is issued monthly under signature authority of the Manager, Space Shuttle Program. It functions as the implementing and planning document for launch dates and launch rates baselined by NSTS 07700, Volume III.

5.5 SSP MANAGEMENT REVIEW PROCESSES

5.5.1 Configuration Control

Configuration identification for the SSP, established in NSTS 07700, Volume IV is used to control and baseline all risk associated with the program. Configuration control is accomplished through the development of formal documentation to describe the baseline to be used for planning purposes and to control and account for future changes. The SSP baseline documentation contains program requirements, Space Shuttle management requirements, system technical requirements, descriptive documentation, and indentured parts listings and other identification documents describing the configuration of all Space Shuttle flight hardware/software.

To ensure that the configuration requirements of all flight hardware are properly identified and verified, a closed-loop accounting and verification system is implemented by the SSP elements/projects. The configuration requirements closed-loop accounting information is available for program wide access and review to support major milestones and flight readiness activities. This closed-loop accounting process consists of a mission specific configuration requirements baseline; a configuration accounting process traceable to the implementing work document; and a configuration verification process which implements a thorough review of the accomplishing work document(s) as having been completed, deleted or deferred prior to the key processing milestone that is identified as a constraint for completion of the work.

5.5.2 SSP Board Authority and Safety Review

SSP boards control the SSP document baselines and changes to the baseline. The board chair, with the advice and recommendations of the board members, disposes these changes. The Space Shuttle PRCB is the controlling authority for SSP controlled document baselines and changes. All SSP controlled documents are under PRCB configuration control unless this control has been delegated to another board.

The SSP System Safety Review Panel (SSRP), documented in NSTS 07700, Volume II - Book 2, SSP Directive 110, is responsible for integrating SSP system safety

engineering and analysis through establishment of analysis and database standards, evaluation of technical products, and maintenance/configuration management of program risk products. The SSRP assesses integrated element level risks in concert with the USA SFOC risk management program and provides recommended safety resolution and safety of flight rationale to SSP management. SSRP objectives include establishing and executing safety risk management techniques to provide identification and resolution of potential program risks.

5.5.3 Certificate of Flight Readiness

CM includes ensuring that requirements are properly implemented and hardware/software is certified as having been designed and built to the correct configuration. Requirements, design, and hardware/software configuration reviews, such as System Requirements Reviews, Preliminary Design Reviews, and CDRs are conducted as necessary to ensure that this is accomplished. The final steps in configuration verification for a specific flight are conducted as a part of the commit-to-flight review process consisting of a series of reviews and readiness polls structured to incrementally assess progress toward readiness for flight. The review process is incrementally updated through endorsements of the CoFR and polls of the key NASA and contractor managers. The CoFR process, documented in NSTS 08117, Space Shuttle Requirements and Procedures for Certification of Flight Readiness, constitutes the main part of the SSP risk management review process. NSTS 08117 defines the SSP flight preparation process and the procedures for the project milestone reviews and the FRR. It also defines the endorsement documentation required at the completion of the FRR, which provides the CoFR for flight. Safety related activities/areas are integral to the CoFR process including FMEA/CIL, Hazard Analysis, Alerts, System Safety Review, Waivers, Problem Reporting and Corrective Actions, Technical Issues, S&MA independent assessment, and Program Review Boards.

APPENDIX A

ACRONYMS AND ABBREVIATIONS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

ACRONYMS AND ABBREVIATIONS

1.0 INTRODUCTION

This document was prepared in order to facilitate communications within the SSP. It contains a listing of acronyms and abbreviations in current usage in the program. It is intended for use by those who write, interpret, and prepare material for publication relative to the program.

Material contained in this document is a compilation from documentation of all types published within the program. It is recognized that this document is not all inclusive or complete. It will be updated periodically to provide a current listing of approved acronyms and abbreviations. Recommendations relative to additions or revisions to, or deletions from, this document should be directed to the Management Integration Office of the Space Shuttle Program Office.

THIS PAGE INTENTIONALLY LEFT BLANK

ACRONYMS AND ABBREVIATIONS

A	Aft
	Ampere
A&A	Advertise and Award
A&E	Architectural and Engineering
A&L	Approach and Landing
A&PS	Administration and Program Support (Directorate-MSFC)
A/A	Air-to-Air
A/C	Aircraft
	Associate Contractor
A/D	Analog-to-Digital
A/G	Air to Ground
A/L	Airlock
	Approach/Landing
A/N	Alpha-Numeric
A/P	Airport
A/S	Auxiliary Stage
A8L	Displays and Control Panel A8 Lower
A8U	Displays and Control Panel A8 Upper
AA	Accelerometer Assembly
	Airplane Avionics
	American Airlines
AA-OSF	Associate Administrator - Office for Space Flight
AA/AL	Airplane Avionics/Autoland
	Automatic Approach/Autoland
AA/SF	Associate Administrator for Space Flight
AACB	Aeronautics and Astronautics Coordination Board
AADS	Ascent Air Data System
AAE	Abort Advisory Equipment
	Aerospace Auxiliary Equipment
AAF	Army Air Field
AAFE	Advanced Applications Flight Equipment
AAIR	Advanced Atmospheric Sounder and Imaging Radiometer
AAS	Abort Advisory System
AB	Airbase
	Airborne
ABCR	As-Built Configuration Record
ABE	Arm Based Electronics
ABM	Advanced Bill of Material
ABS	Across the Bay Structure
	Antenna Bridge Structure

ABT	Abort
	About
ac	Alternating Current
ACB	Air Cushion Barge
ACC	Automatic Control Console
ACCEL	Acceleration
	Accelerometers
ACCESS	Assembly Concept for Construction of Erectable Space Structures
ACCN	Audio Central Control Network
ACCU	Audio Central Control Unit
ACD	Accuracy Control Document
	AKM Capture Device
ACE	Automatic Checkout Equipment
ACES	Acceptance Checkout and Evaluation System
ACIL	Automatic Controlled Instrument Landing
ACIP	Aerodynamic Coefficient Instrumentation Package
ACIS	AXAF CCD Imaging Spectrometer
ACL	Allowable Container Load
	Ascent Closed Loop
	Augmented Contingency Landing Sites
ACLC	Adaptive Communication Line Controller
ACM	Acquisition Control Module
ACN	Ascension Island (STDN)
ACn	AC Power Bus n
ACO	Acceptance Checkout
	Administrative Contracting Officer
ACP	Astronaut Control Panel
	Audio Control Panel
ACPM	Associate Contractor Program Manager
ACPO	Associate Contractor Project Office
ACPS	Attitude Control Propulsion Subsystem
ACQ	Acquisition
ACR	Action Closeout Request
ACRV	Assured Crew Return Vehicle
ACS	Attitude Control System
	Automated Control System
ACT	Acquisition, Control of Test (Units)
	Actuate
	Actuator
ACTA	Activate Test Article
Activ	Activation
ACTS	Advanced Communications Technology Satellite
ACV	Air Cushion Vehicle

ACWP	Actual Costs for Work Performed
ADAP	Adaptive Intercommunication Requirement
ADB	Aerodynamic Data Book
ADC	Air Data Computer
	Analog to Digital Computer
ADF	Automatic Direction Finder
	Automatic Display Finder
ADI	Attitude Direction Indicator
	Attitude Display Indicator
ADL	Avionics Development Laboratory (RI-SD)
ADP	Acceptance Data Package
	Air Data Probe
	Automatic Data Processing
ADPA	Air Data Probe Assembly
ADPE	Automatic Data Processing Equipment
ADS	Air Data System
ADTA	Air Data Transducer Assembly
AEC	Atomic Energy Commission
AED	Analog Event Distribution
AEDC	Arnold Engineering Development Center
AELS	Augmented Emergency Landing Sites
AERO	Aerodynamic
aerodrag	Aerodynamic Drag
AETL	Approved Engineering Test Laboratory
AF	Aft Fuselage
	Airframe
	Audio Frequency
AFA	Air Frame Assembly
AFAD	Armed Forces Acquisition Document
AFB	Air Force Base
AFC	Automatic Frequency Control
AFCS	Automatic Flight Control System
AFD	Accepted for Data
	Aft Flight Deck
AFDS	Aft Flight Deck Simulator
AFE	American Flight Echocardiograph
AFEB	Award Fee Evaluation Board
AFEC	Award Fee Evaluation Committee
AFETR	Air Force Eastern Test Range
AFETRM	Air Force Eastern Test Range Manual
AFF	Acceptance and Ferry Flight
AFFTC	Air Force Flight Test Center (Edwards AFB)

AFGWC	Air Force Global Weather Center
AFI	Automatic Fault Isolation
AFLC	Air Force Logistics Command
AFM	Air Force Manual
AFO	Abort From Orbit
	Announced Flight Opportunity
AFP	Air Force Procedures/Proposal
	Assessment Flight Profile
AFPD	Authorization for Program Development
AFR	Air Force Regulation
AFRSI	Advanced Felt Reusable Surface Insulation
AFS	Air Force Standard
	Air Force Station
AFSC	Air Force Systems Command
AFSCF	Air Force Satellite Control Facility
AFSIG	Ascent Flight Systems Integration Group
AFSWC	Air Force Special Weapons Center (Holloman AFB)
AFT	Aerodynamic Flight Test
	Atmospheric Flight Test
AFTA	Acoustic Fatigue Test Article
AFTx	Aft dc Power Bus x
AG	Air-to-Ground
	Artificial Gravity
AGC	Automatic Gain Control
AGE	Aerospace Ground Equipment
AGL	Above Ground Level
AGO	Santiago, Chile (STDN)
AGS	Anti-Gravity Suit
AGT	Adaptive Guidance and Throttling
	Adaptive Guidance Throttling
AHA	Assembly Hazard Analysis
AIAA	American Institute of Aeronautics and Astronautics
AID	Abbreviated Item Description
	Analog Input Differential
	Audit Item Disposition
AIDS	Airborne Integrated Data Subsystem
AIL	Avionics Integration Laboratories
AILS	Automatic Instrument Landing System
AIM	Automated Information Management
AIP	Avionics Integration Plan
AIR	Adaptive Intercommunication Requirement
	Atmospheric Instrumentation Research
AIRLOCK	Airlock (SSF/MB-07)
AIRME	Apollo Initiator Resistance Measuring Equipment
AIS	Analog-In Single-Ended
AIT	Analysis and Integration Team
AJ	Assembly Jig

AKA	Active Keel Actuator Assembly
AKM	Apogee Kick Motor
AL	Air Lock
ALAS	Approach Landing Autopilot Subsystem
ALC	Automatic Light Control
ALCE	Airlift Command Element
ALCOM	Algorithm Line of Sight Comparison
ALDO	Activity Level Dependent Operations
ALE	Airport Lighting Equipment
ALERT	Acute Launch Emergency Reliability Tip
ALIO	Activity Level Independent Operations
AIO ₂	Aluminum Oxide
ALPHA	Angle of Attack
ALPHA ANGLE	Angle of Attack
ALS	Advance Logistics System
	Alternate Landing Site
	Augmented Landing Site
ALSE	Astronaut Life Support Equipment
ALSF	Approach Light System Flashers
ALSS	Airlock Support Subsystem
ALT	Altitude
	Approach and Landing Test
ALTR	Approach and Landing Test Requirement
AM	Actuator Mechanism
	Ammeter
	Amplitude Modulation
AMA	Air Material Area
AMC	Automatic Mixture Control
AMDS	Advanced Missions Docking Subsystem
AME	AMI Electronics (Unit)
AMEC	Aft Master Events Controller
AMF	Abort Motor Facility
AMI	Airspeed/Mach Indicator
	Alpha Mach Indicator
AMIC	Automated Management Information Center
AMLC	Asynchronous Multiline Controller
AMOS	Air Force Maui Optical Site Calibration Tests
AMP	Ampere
AMPR	Aeronautical Manufacturer's Planning Report
	Aeronautical Manufacturer's Progress Report
AMPS	Atmosphere, Magnetosphere, and Plasmas in Space
AMPTS	Automated Mission and Payload Tracking Systems
AMR	Atlantic Missile Range

AMS	Acoustic Measurement System
	Alpha Magnetic Spectrometer
AMTAS	Automatic Modal Tuning and Analysis System
AMTF	Acoustic Model Test Facility
amu	Atomic Mass Unit
ANA	Air Force Navy Aeronautical Bulletin
ANAL	Analysis
AND	Air Force - Navy Aeronautical Design Standard
ANGB	Air National Guard Base
ANL	Analog
ANSI	American National Standards Institute
ANT	Antenna
	Antigua (ETR)
AOA	Abort-Once-Around
	Angle of Attack
	Around Once Abort
AOCD	Acceptance and Operational Checkout Requirements Document
AOD	Aircraft Operations Division
	Analog Output Differential
AOPM	Airline Operations Planning Model
AOS	Acquisition of Signal
AOT	Avionics Overall Test
AP	Attaching Part
APA	Abort Programmer Assembly
	Allowance for Program Adjustment
APC	Adaptive Payload Carrier
	Autonomous Payload Controller
APCF	Advanced Protein Crystallization Facility
APCG	Advanced Protein Crystal Growth
APE	Auroral Photography Experiment
APIL	Automated Process Information File
APILS	Aimpoint Identification Light System
APIRD	Authorized Procurement Information Requirements Description
APIRL	Authorized Procurement Information Requirements List
APM	Ascent Particle Monitor
	Ascent Performance Margin
	Associate Program Manager
APP	Advanced Procurement Package
	Approach
	Approved
	Astrophysics Payloads
APPF	Automated Payload Processing Facility
APPRO	Approximate
APR	Advanced Parts Release

APS	Aft Propulsion Subsystem Attitude Propulsion Subsystem Auxiliary Power Subsystem
APSS	Atmospheric Pressure Supply Subsystem
APU	Auxiliary Power Unit
AQL	Acceptable Quality Level
AR	Acceptance Readiness Acceptance Review
AR&C	Automatic Rendezvous and Capture
ARABSAT	Arab Satellite Communications Organization - Satellite
ARC	Ames Research Center
ARCS	Aft Reaction Control Subsystem
ARD	Abort Region Determinator
ARF	Aquatic Research Facility
ARFDS	Automatic Reentry Flight Dynamics Simulator
ARINC	Aircraft Radio Incorporated
ARS	Air Rescue Science Atmospheric Revitalization System Attitude Reference System
ARV	Aerodynamic Reference Velocity
AS	Ascent
ASA	Aerosurface Servo Amplifier American Standards Association Assured Shuttle Availability
ASAC	Aerodynamic Surface Assembly and Checkout
ASAD	"All Singing All Dancing" (SPAR Aerospace's RMS Simulator)
ASAP	As Soon As Possible
ASAS	Aerodynamic Stability Augmentation Subsystem
ASC	Aero Surface Control Ascent Astroculture
ASCII	American Standard Code for Information Interchange
ASCP	Attitude Set Control Panel
ASCS	Attitude Stabilization and Control System
ASD	Avionic Systems Division
ASE	Airborne Support Equipment Automatic Support Equipment
ASED	Avionics Systems Engineering Division (JSC)
ASG	Avionics Subsystem Group
ASI	Amended Shipping Instructions Augmented Spark Igniter
ASK	Amplitude-Shift-Keying
ASKA	Automatic Systems for Kinematic Analysis

ASLU	Antenna Select Logic Unit
ASME	American Society of Mechanical Engineers
ASP	Attitude Sensor Package
ASPEC	Application Specific Preprogrammed Experiment Culture System
ASQC	American Society for Quality Control
ASR	Air/Sea Rescue
	Avionics Systems Review
*ASRB	Advanced Solid Rocket Booster
*ASRM	Abort Solid Rocket Motor
	Advanced Solid Rocket Motor
ASSY	Assembly
ASTF	Aeropropulsion System Test Facility
ASTIA	Armed Service Technical Information Agency
ASTM	American Society for Testing Materials
ASTRAL	Aft Thrust Structure Algorithm
ASTRO	Ascent Simulation Trajectory Optimization
	Astronomy Payload
AT	Action Time
	Alternate Turbopump
ATA	Abort Time Assembly
	Air Transport Association
	Assembly Test Article
	Avionics Test Article
ATC	Air Traffic Control
ATCO	Ambient Temperature Catalytic Oxidizer
ATCS	Active Thermal Control Subsystem
	Active Thermal Cooling System
ATD	Alternate Turbopump Development
ATDB	Aerothermodynamic Data Book
ATE	Automatic Test Equipment
ATG	Aerospace Test Group
ATL	Advanced Technology Laboratory
ATLAS	Abbreviated Test Language for Avionics Systems
	Atmospheric Laboratory for Applications and Science
ATM	Apollo Telescope Mount
	Atmosphere
ATO	Abort to Orbit
ATOLL	Acceptance, Test, or Launch Language
ATP	Acceptance Test Procedure
	Authority to Proceed

* Canceled per NASA Headquarters letter DL (Subject: Advanced Solid Rocket Motor [ASRM] Program Termination), signed October 27, 1993.

ATR	Air Transport Rack
	Air Transport Radio
	Air Transport Rating
	Attenuated Total Reflectance Average
ATS	Acceptance Test Specification
	Administrative Terminal System
	Analog Tone Signal
ATT	Acceptance Thermal Testing
ATU	Audio Terminal Unit
ATVC	Ascent Thrust Vector Control
AUSSAT-1	Australian National Satellite System
auto	Automatic
AUTODIN	Automatic Digital Network
AUTOLAND	Automatic Landing
AUTOVON	Automated Voice Operated Network
AUX	Auxiliary
AUXx	Auxiliary Power Bus x
AV	Avionics
AVD	Alternate Voice/Data
AVG	Average
AVL	Avionics Verification Laboratory
AVT	Acceptance Vibration Testing
AVVE	AVVI Electronic (Unit)
AVVI	Altitude Vertical Velocity Indicator
AWCS	Agency-Wide Coding Structure
AWG	American Wire Gage
AWL	Automated Wire List
AWS	Air Weather Service
	Air Weather Station
	American Welding Society
	Automated Wiring System
AXAF	Advanced X-Ray Astrophysics Facility
AXAF-I/IUS	Advanced X-Ray Astrophysics Facility-Imaging/Initial Upper Stage
AZ	Azimuth

THIS PAGE INTENTIONALLY LEFT BLANK

B&P	Budgetary and Planning
B&W	Black and White
B-RSS	Boeing Reusable Space Systems
B-1	Switching Frame Designator
B-1 DIV	B-1 Division (Rockwell)
B/C	Bench Check
B/L	Baseline
B/O	Burn Out
B/SC	Brake Skid Control
B/W	Black-and-White
BA	Bank Angle
BAC	Boeing Aircraft Company
	Booster Assembly Contractor
	Buffer Access Card
BAI	Barometric Altitude Indicator
BAN	Budget Allocation Notice
BARS	Baseline Accounting and Reporting System
BASS	Backup Avionics System Software
BB	Breadboard
BBC	Before Business Clearance
BBXRT	Broad Band X-Ray Telescope
BC	Battery Charger
BCCT	Break Control Command Transducers
BCE	Bus Control Element
BCH	Bose-Chaudhuri-Hocquenghen
BCP	Benchmark Control Point
	Build Configuration Panel
BCU	Bus Control Unit
BCWP	Budgeted Costs for Work Performed
BCWS	Budgeted Costs for Work Scheduled
BDA	Bermuda (STDN)
BDS	Bioreactor Demonstration System
BECO	Booster Engine Cutoff
BER	Bit Error Rate
BESS	Biomedical Experiment Scientific Satellite
BET	Best Estimate of Trajectory
BETA	Angle of Sideslip
BETA ANGLE	Sideslip Angle
BETSCE	Brilliant Eyes Ten-Kelvin Sorption Cryocooler Experiment
BFCS	Backup Flight Control System
BFS	Backup Flight Software
	Backup Flight System
BI	Booster Identification
BIMDA	Bioserve Instrumentation Technology Associates Materials Dispersion Apparatus

BIT	Built-in Test
BITE	Built-in Test Equipment
BITS	Battleview Image Transmission System
BIU	Buffer Interface Unit
BKNO ₃	Boron Potassium Nitrate
BLAST	Battlefield Laser Acquisition Sensor Test
BLCH	Boundary Layer Coolant Holes
BLDG	Building
BLKII	Block II
BLOW	Booster Lift-Off Weight
BMAP	Buffer Map
BME	Bench Maintenance Equipment
BN	Ballistic Number
BOB	Breakout Box
BOD	Beneficial Occupancy Date
BOF	Beginning of File
BOM	Bill of Materials
BOT	Beginning of Tape
	Bottom
bp	Barberpole
BP	Boiler Plate
BPD	Baseline Program Documentation
BPI	Bits per Inch
BPS	Bits per Second
BREMSAT	University of Bremen Satellite
BRIC	Biological Research in Canisters
BRRS	Banana River Repeater Station
BSDP	Booster Stage Discharge Pressure
BSI	Basic Shipping Instructions
BSM	Booster Separation Motors
BSR	Basic System Release
	BITE Status Request
BSRM	Boost Solid Rocket Motor
BTC	Bit Time Cell
BTU	British Thermal Unit
	Bus Terminal Unit
BU	Backup
	Buildup (Thrust)
BUOU	Backup Optical Unit
BUR	Backup Rate
BW	Bridge Wire

C	Capacitance
	Celsius
	Centigrade
	Complete
	Cycle
	Hundred
c.g.	center of gravity
C&D	Control and Display
C&DS	Command and Data Simulator
C&L	Checkout and Launch
C&T	Communication and Tracking
C&TSS	Communication and Tracking Subsystem
C&W	Caution and Warning
C-band	3900 to 6200 Megahertz
C-C	Carbon-Carbon
C-To-C	Computer-To-Computer
C/C	Center to Center
C/D	Countdown
C/O	Checkout
	Cutoff
C/SCSC	Cost Schedule Control Systems Criteria (DOD 7000.2)
C/W	Caution and Warning
CA	California
	Corrective Action
	Cost Account
	Cost Avoidance
CAAR	Corrective Action Assistance Request
CAB	Cabin
	Cabinet
	Civil Aeronautics Board
CAD	Computer Aided Design
CADE	Controller/Attitude - Direct Electronics
CADS	Command and Data Simulator
CADSI	Communications and Data Systems Integration
CADU	Control and Display Unit
CAF	Axial Force Coefficient
CAL	Calibration
	Cornell Aeronautical Laboratory
CAM	Carrier Aircraft Modification
	Computer Aided Manufacturing
	Content Addressable Memory
CAN	Certification Analysis Network
CAP	Capacity
	Contractor Acquired Property
	Cost Account Package
	Crew Activity Plan

CAPCOM	Capsule Communicator
CAPL	Capillary Pumped Loop Experiment
CAPL/GBA	Capillary Pumped Loop Experiment/GAS Bridge Assembly
CAPT	Captain
CAR	Certification Approval Request
	Change Action Request
	Configuration and Acceptance Review
	Corrective Action Request
CAS	Calibrated Ancillary System
	CITE Augmentation System
	Command Augmentation System
CASO	Cancellation Addendum Sales Order
CAU	Command Acquisition Unit
CB	Center of Buoyancy
	Circuit Breaker
CBARS	Classified Baseline Accounting Reporting System
CBC	Common Bracket Clamp
CBIL	Common and Bulk Items List
CBn	Circuit Breaker n
CBSA	Cargo Bay Stowage Assembly
CBX	C-Band Transponder
CC	Cost Center
CCA	Contract Change Authorization
CCAFS	Cape Canaveral Air Force Station (formerly CKAFS)
CCATS	Command, Communication and Telemetry Subsystem
CCB	Configuration Control Board
CCBD	Configuration Control Board Directive
CCC	Central Computer Complex
	Consolidated Control Center
	Contaminant Control Cartridge
	Controller Checkout Console
CCCD	Crew Compartment Configuration Drawing
CCCR	Crew Compartment Configuration Review
CCD	Cape Canaveral Datum
	Change Coupled Device
	Checkout Command Decoder
CCFA	Common Cause Failure Analysis
CCFF	Cape Canaveral Forecast Facility
CCL	Commonality Candidate List
CCM	Cell Culture Module
	Controlled Carrier Modulation
CCMS	Checkout, Control and Monitor Subsystem
CCN	Code Change Notice
	Contract Change Notice
CCOH	Corrosive Contaminants, Oxygen, and Humidity

CCP	Configuration Change Point Configuration Control Panel Contract Change Proposal
CCRA	Cape Canaveral Reference Atmosphere (formerly CKRA)
CCRF	Consolidated Communication Recording Facility
CCS	Central Control Section Command and Communication System Command and Control Software Command and Control System Complex Control Set
CCTV	Closed Circuit Television
CCU	Camera Control Unit
CCV	Chamber Coolant Valve
CCVA	Chamber Coolant Valve Actuator
CCW	Counterclockwise
CDA	Command and Data Acquisition Critical Design Audit
CDB	Common Data Buffer
CDBFR	Common Data Buffer Firing Room
CDC	Confined Detonating Cord Control Data Corporation Countdown Clock
CDDT	Countdown Demonstration Test
CDE	Category Data Element
CDF	Central Data Facility Circuit Design Fabrication Confined Detonating Fuse
CDF & TDS	Circuit Design, Fabrication and Test Data Systems
CDI	Course Deviation Indicator
CDMS	Command Data Management System
CDPIS	Command Data Processing and Instrumentation System
CDR	Critical Design Review Commander
CDRL	Contract Data Requirements List
CDRR	Contract Documentation Requirements Records
CDSC	Communications Distributing and Switching Center
CDSF	Commercially Developed Space Facility
CDT	Central Daylight Time Command Descriptor Table Compressed Data Tape Countdown Time

CDW	Command Data Word
CE	Cargo Element
	Change Evaluation
	Cost Element
CEBAS	Closed Equilibrium Biological Aquatic System
CEC	Control Encoder Coupler
CEI	Configuration End Item
	Contract End Item
CEIT	Crew Equipment Integration Test
	Crew Equipment Interface Test
CER	Cost Estimating Relationship
CERT	Certification
CES	Crew Escape System
CETA	Crew and Equipment Translation Aid
CFD	Computational Fluid Dynamics
CFE	Contractor Furnished Equipment
CFM	Cubic Feet per Minute
	Customer Furnished Material
CFP	Conceptual Flight Profile
CFR	Code of Federal Regulations
CFSTI	Clearinghouse for Scientific and Technical Information
CFY	Company Fiscal Year
CG	Center of Gravity
CGBA	Commercial Generic Bioprocessing Apparatus
CGC	Command Guidance Computer
CGP/ODERACS	CSE/GLO-2 Payload/Oderacs
CHL	Certified Hardware List
	Channel
CHMBR	Chamber
CHR	Cooper-Harper Rating
CHROMEX	SLSTP Chromosomes and Plant Cell Division in Space
CI	Configuration Inspection
CIB	Change Impact Board
	Change Implementation Board
CIC	Control and Information Center
CIE	Communications Interface Equipment
CIF	Central Instrumentation Facility
CIG	Cable Integrity Group
CIGS	Computer Image Generator System
CIL	Critical Items List
CIN	Center Information Network
CIO	Chief Information Officer
CIP	Carrier Integration Plan

CIR	Cargo Integration Review
CIRA	Critical Items Risk Assessment
CIS	Central Integration Site
	Change Impact Summary
	Communication Interface System
CITE	Cargo Integration Test Equipment
	Cargo Interface Test Equipment
CITE MR	Cargo Integration Test Experiment Material Review
CIU	Computer Interface Unit
CKAFS	Cape Kennedy Air Force Station (changed to CCAFS)
CKRA	Cape Kennedy Reference Atmosphere (changed to CCRA)
CL	Centerline
	Closed Loop
CLCR	Controller Logic Change Request
CLM	Care Logic Module
CLMC	Central Logistics Management Center
CLOUDS	Clouds Logic to Optimize Use of Defense System
CLRB	Cost Limit Review Board
CLS	Contingency Landing Site
cm	Centimeter(s)
CM	Center of Mass
	Configuration Management
	Consumables Management
	Crew Module
CM&S	Communications Maintenance and Storage
CMA	Configuration Management Accounting
CMAO	Contract Management Assistance Officer
CMAT	Compatible Materials (List)
CMC	Command Management Center
CMD	Command
CMF	Forebody Pitching Moment Coefficient
CMG	Control Moment Gyro
CMIX	Commercial Materials Dispersion Apparatus ITA Experiment
CMM	Condition Monitored Maintenance
CMMR	Common Mode Rejection Ratio
CMO	Configuration Management Office
CMOS	Complimentary Metal Oxide Silicon
CMRB	Contractor Material Review Board
CMSE	Candidate Materials Space Experiment
CMTS	Computerized Maintenance Test System
CMV	Common Mode Voltage
CN	Change Notice

CNCR	Character of Neurospace Circadian Rhythms in Space
CNTRL	Control
CO	Change Order
	Contracting Officer
CO ₂	Carbon Dioxide
COAS	Coarse Optical Alignment Sight
	Crew Optical Alignment Sight
COAX	Coaxial Cable
COB	Close of Business
COBE	Cosmic Background Explorer
COB/GBA	Capillary Pumped Loop/Orbital Debris Radar
	Calibration Spheres/BREMSTAT/GAS Bridge Assembly
CofF	Construction of Facilities
COFI	Checkout and Fault Isolation (on Board)
CoFR	Certificate of Flight Readiness
COFW	Certificate of Flight Worthiness
COIS	Canal and Otolith Interaction Studies
COLUMBUS	Columbus (ESA) Module (SSF/MB-13)
COMAS	Combined Orbital Maneuvering and Abort System
COMAT	Compatibility of Materials
COMB	Combustion
COMM	Communications
COMP	Component
	Computer
COMPEN	Compensator
COMPOOL	Common Data Pool
COMPR	Compressor
COMSEC	Communications Security
CONCAP-II	Complex Autonomous Payload-II
CONCAP-IV	Consortium for Materials Development in Space Complex
	Autonomous Payload-IV
COND	Conditioner
CONN	Connector
CONT	Continued
	Control
CONT/MON	Continuous Monitoring
CONUS	Continental United States
COQ	Certificate of Qualification
COR	Contracting Officer Representative
COS	Carry-On Oxygen System
	Console Operating System
COSATI	Committee of Scientific and Technical Information
	(of the Federal Council for Science and Technology)

COSI	Closeout System Installation
COTS	Commercial Off-the-Shelf (Communications Software)
CP	Center of Pressure
	Change Proposal
	Circular Pitch
	Console Processor
CPA	Contingency Planning Aid
	Critical Path Analysis
CPAF	Cost Plus Award Fee
CPC	Central Planning Center
	Computer Program Component
CPCB	Crew Procedures Control Board
CPCEI	Computer Program Contract End Item
CPCG	Commercial Protein Crystal Growth
CPCR	Computer Program Change Request
CPDDS	Computer Program Detail Design Specification
CPDS	Computer Program Design Specification
	Computer Program Development Specification
CPE	Chief Program Engineer
CPEI	Computer Program End Item
CPES	Crew Procedures Evaluator Simulator
CPF	Cargo Processing Facility
	Cost per Flight
CPFF	Cost Plus Fixed Fee
CPIF	Cost Plus Incentive Fee
CPM	Computer Program Module
	Critical Path Method
CPMP	Crew Procedures Management Plan
CPR	Critical Problem Report
CPS	Cycles per Second
CPSE	Common Payload Support Equipment
CPT	Cargo Processing Technician
CPU	Central Processing Unit
CQCM	Cryogenically-Cooled Quartz Crystal Microbalance
CR	Certification Requirement
	Change Request
	Configuration Review
CRAS	Cost Reduction Alternative Study
CRB	Change Review Board
CRBD	Change Review Board Directive
CRC	Cost Reduction Curve
CRD	Change Request Directive
CRDG	Contamination Requirements Definition Group
CREAM	Cosmic Radiation Effects and Activation Monitor

CRES	Corrosion Resistant Steel
CRF	Contingency Response Force
CRG	Change Review Group
	Correspondence Review Group
CRIS	Calibration Recall and Information System
CRISTA-SPAS	Cryogenic Infrared Spectrometers and Telescopes for Atmosphere - SPAS
CRN	Contract Revision Number
CRP	Configuration Requirements Processing
CRR	Computer Run Report
	Critical Requirements Review
CRRS	Cypress Ridge Relay Site
CRSI	Ceramic Reusable Surface Insulation
CRT	Cathode-Ray Tube
	Crew Recovery Team
CRYO	Cryogenic
CRYOFD	Cryogenic Flexible Diode
CRYSP	Crystal Sample Package
CS	Change Status
	Crew Station
CSA	Canadian Space Agency
CSC	Contingency Support Coordinator
CSCI	Computer Software Configuration Item
CSD	Chemical Systems Division
CSDD	Control System Development Division (JSC)
CSDL	Charles Stark Draper Laboratory (MIT)
CSE	Common Support Equipment
	Configuration Switching Equipment
	Cryo System Experiment
CSF	Central Supply Facility
	Communications Facility
	Cost Sensitivity Factor
CSI	Control Servo Input
CSIR	Computer Systems Hardware/Software Integration Review
CSM	Common Support Module
CSP	Cross System Product
CSR	Certification Status Report
	Check Signal Return
	Crew Station Review
	Customer Support Room
CSS	Computer Subsystem
	Control Stick Steering

CST	Central Standard Time Contract Supplemental Tooling Crew Station Trainer
CSTA	Crew Software Training Aid
CT	Crawler Transporter
CTC	Chief Test Conductor
CTF	Commit-to-Flight
CTL	Canoga Test Laboratory Control
CTM	Contract Technical Manager Crystalline Transitional Material
CTN	Certification Test Network
CTP	Communications Timing Procedure
CTR	Contract Technical Representative
CTRS	Component Test Requirements Specifications
CTS	Communications and Tracking System Communications Technology Satellite Computer Test Set
CTU	Central Timing Unit
CUB	Commonality Usage Board
CUC	Computer Usage Control
CUE	Collaborative Ukrainian Experiment Common Usage Equipment
CUIL	Common Usage Item List
CUM	Cumulative
CUP	Commonality Usage Proposal
CUPOLA	Cupola (SSF/MB-05)
CV	Coefficient of Variation
CVAS	Configuration Verification Accounting System
CVR	Configuration Verification Review
CVT	Concept Verification Test
CW	Clockwise Command Word Continuous Wave
CWA	Clean Work Area
CWEA	Caution and Warning Electronics Assembly
CWG	Constant Wear Garment
CY	Calendar Year

THIS PAGE INTENTIONALLY LEFT BLANK

D	Deliver Delivery Delta
D&C	Displays and Controls
D&CS	Displays and Controls Subsystem
D/A	Digital-to-Analog
D/L	Deorbit/Landing Down link
D/W	Deviation/Waiver
DABS	Discrete Address Beacon System
DAC	Data Acquisition and Control Digital to Analytical Conversion
DACBU	Data Acquisition and Control Buffer Unit
DACS	Data Acquisition and Control System
DADS	Day-of-Launch Ascent Design System
DAIS	Data Avionics Information System
DAL	Data Accession List
DAP	Digital Auto Pilot
DAS	Data Acquisition System
DASA	Dual Aerospace Servo Amplifier
DAU	Data Acquisition Unit
DB	Data Base Deadband Decibels Dry Bulb
DB2	A Data Base Management Program Utilized in PCASS
DBC	Data Base Compare Data Bus Coupler
DBE	Data Bus Element
DBFN	Data Base File Number
DBIA	Data Bus Interface Adapter Data Bus Isolation Amplifier
DBIU	Data Bus Interface Unit
DBN	Data Bus Network
DBS	Data Bus System
dBuV	Decibel(s) Above a Microvolt
DBW	Data Bus Wire
dc	Direct Current
DC	Design Confidence
DC/PCF	Dynamically Controlled Protein Crystallization Facility
DC/PCG	Dynamically Controlled Protein Crystal Growth
DC/PS	Direct Current Power Supply

DCA	Design Change Authorization Distribution Control Assembly
DCAA	Defense Contract Audit Agency
DCAS	Defense Contract Administration Services
DCC	Data Computation Complex Document Control Center
DCKNG	Docking
DCMB	Development Configuration Management Board
DCN	Data Change Notice Design Change Notice Document Change Notice Drawing Change Notice
DCOP	Displays, Controls and Operation Procedures
DCPEI	DEU Control Program End Item
DCR	Data Change Request Design Certification Review Design Concern Report Document Change Record
DCS	Data Communication System Defense Communication System Design Communication System Digital Command System Display and Control System
DCU	Digital Computer Unit Display and Control Unit
DCV	DC Volts
DD	Directives Documentation
DD&CS	Dedicated Display and Controls Subsystem
DDA	Digital Differential Analyzer
DDAS	Digital Data Acquisition System
DDI	Discrete Digital Input
DDM	Data Display Module Discrete Data Management
DDMS	Department of Defense Manager for the Contingency Support Office
DDP	Deliverable Data Package Design Development Plan Digital Data Processing
DDS	Documentation Distribution System
DDT&E	Design, Development, Test and Evaluation
DDTF	Dynamic Docking Test Facility
DDTS	Dynamic Docking Test System
DDU	Display Driver Unit

DECL	Direct Energy Conversion Laboratory (JSC)
DECOM	Decommutator
DECOMM	Decommutate
DECR	Decrease
DECU	Data Exchange Control Unit
DED	Dedicated
DEE	Dexterous End Effector
	Digital Events Evaluator
DEF	Definition
DEG	Degree
DEIS	Design and Evaluation Inspection Simulator
	Design Engineering Inspection Simulation
DEL	Deliver
	Delivery
DEMOD	Demodulator
DEMUX	Demultiplexer
DEPL	Deploy
DER	Drawing Error Report
DES	Data Exchange System
	Design
DESAT	Desaturated
DET	Data Evaluation Team
	Detail
	Digital Event Timer
DEU	Display Electronics Unit
DEV	Develop
	Development
DEW	Distant Early Warning
DF	Development Flight
	Direction Finding
DFCS	Digital Flight Control Software
	Digital Flight Control System
DFI	Development Flight Instrumentation
DFL	Decommutation Format Load
DFRC	Dryden Flight Research Center
DFS	Directional Finding System
DFVT	Data Flow Verification Test
DG	Display Generator
DGPS	Differential Global Positioning System
DHS	Data Handling System
DIA	Diameter
DIBS	DOL I-Loads Biasing System
DID	Data Item Description
DIDS	Defense Integrated Data Systems

DIFF	Differential
DIFM	Due In For Maintenance
DIG	Digital
DIGICON	Digital Control
DIH	Discrete Input High
DIL	Discrete Input Low
DIM	Design Interface Meeting
	Dimension
DIP	Display Interface Processor
DIPEC	Defense Industrial Plant Equipment Center
DIR	Direct
	Directive
DIS	Documentation Index System
DISAP	Disapproved
DISC	Disconnect
DISCR	discrete
DISP	Display
DIST	Distribution
DIT	Dynamic Integrated Test
DITR	DOLILU Issue Tracking Report
DIU	Data Interface Unit
DIVDT	DOL I-Load Verification Data Tables
DIVDT II	Day-of-Launch I-Load Verification Tables, Phase II
DIVPLT	DIVDT Plot
DLSC	Defense Logistics Services Center
DLSFR	Delta Launch Site Flow Review
DLTR	Data Link Transmission Repeater
DM	Development Motor
DMA	Direct Memory Access
DMC	Direct Maintenance Cost
DMCF	Definitive Medical Care Facility
	Deservicing, Maintenance and Checkout Facility
DME	Distance Measuring Equipment
DMICB	Daily Mission Integration Control Board
DMON	Discrete Monitoring
DMS	Data Management System
	Docking Mechanism Subsystem
	Dynamic Motion Simulator
DMSP	Defense Meteorological Satellite Program
DMSS	Data Management System Simulator
DN	Discrepancy Notice
DNA	Does Not Apply
DNLK	Downlink
DNLT	Downlist
DOC	Document
	Documentation

DOD	Department of Defense
DOF	Degrees of Freedom
	Direction of Flight
DOH	Discrete Output High
DOL	Day-of-Launch
	Discrete Output Low
DOLILU	Day-of-Launch I-Loads Update
DOLILU II	Day-of-Launch I-Loads Update, Phase II
DOLUTL	Day-of-Launch Utilities
DOMSAT	Domestic Satellite
DOS	Disk Operating System
DOSS	Dexterous Orbiter Servicing System
DOT	Department of Transportation
	Deployed Operations Team
DP	Deep
	Delayed Procurement
	Deployment Panel
	Design Proof
	Development Phase
	Double Pole
	Double Precision Floating Point
DP&S	Data Processing and Software
DPP	Deployment Pointing Panel
DPR	Definition Phase Review
DPRO	Defense Procurement Resident Office
DPS	Data Processing and Software
	Data Processing Subsystem
	Degrees Per Second
DPT	Design Proof Test
DR	Design Review
	Discrepancy Report
	Disposition Record
DRA	Document Release Authorization
DRB	Design Review Board
DRC	Data Reduction Center
DRD	Data Requirements Description
DRF	Data Request Form
DRI	Data Rate Indicator
DRL	Data Requirements List
DRM	Design Reference Mission
	Drawing Requirements Manual
DRR	Design Requirements Review
DRS	Data Relay Station
	Digital Range Safety
	Draper RMS Simulation

DRSS	Discrepancy Report Squawk Sheet
DRUC	Disposition Record Unsatisfactory Condition
DSA	Defense Supply Agency
DSC	Dedicated Signal Conditioner
	Dynamic Standby Computer
DSDU	Data Storage Distribution Unit
DSIS	DCS SCF Interface System
DSn	Display, Switch n
DSN	Deep Space Network
DSO	Detailed Supplementary Objective
DSP	Defense Support Program
DSPL	Display
DSPM	Designated Subsystems Project Manager
DSS	Department Summary Schedule
DST	Dimensional Special Tooling
DTA	Development Test Article
DTCS	Digital Test Command System
DTCW	Data Transfer Command Word
DTI	Development Test Instrumentation
DTMO	Development, Test and Mission Operations
DTMS	Digital Test Measurement System
DTO	Detailed Test Objective
	Development Test Objective
DTP	Detail Test Plan
DTRD	Development Test Requirements Document
DTS	Data Transfer System
	Data Transmission System
DU	Display Unit
DUM	Dummy
DUPLX(R)	Duplex(er)
DVM	Digital Volt Meter
DVS	Design Verification Specification
DWG	DOLILU Working Group
	Drawing
DWI	Data Word In

E	Exempt (from traceability) Potential Difference, Energy
E&D	Engineering and Development (Directorate-JSC)
E-E	End to End
E/C	Encoder Coupler
E/L	Entry/Landing
E/O	Engineering Operations
E/O IMS	Engineering Operations Information Management System
EA	Each
EAC	Estimate at Completion Experiment Apparatus Container
EAD	Electrically Alterable Device
EADS	Engineering and Analysis Data System
EAFB	Edwards Air Force Base
EAM	Electrical Accounting Machine
EAPR	Engineering Analysis Process Report
EAR	Engineering Analysis Report
EAS	Equivalent Air Speed
EASE	Experimental Assembly of Structures in EVA
EAT	Environmental Acceptance Test
EB	Electronic Beam
EBC	Emulated Buffer Computer
EBW	Electron Beam Welding Exploding Bridge Wire
EC	Element Contractor Events Coupler
ECA	Epoxy Curing Agent
ECB	Events Control Buffer
ECC	Engineering Critical Component
ECCB	Engineering Change Control Board
ECD	Estimated Completion Date
ECI	Earth Centered Inertial Coordinate System
ECLS	Environmental Control and Life Support
ECLSS	Environmental Control and Life Support Subsystem
ECO	Engine Cutoff
ECP	Engineering Change Proposal
ECR	Engineering Change Request
ECS	Engine Control System Environmental Control System
ECT-02	Emulsion Chamber Technology Experiment Reflight
ECU	Environmental Control Unit

ED	Edge Distance
	Engineering Directive
	Engineering Directorate
EDA	Electronic Display Assembly
EDB	Environmental Data Book
EDC	Engineering Design Change
EDCP	Engineering Design Change Proposal
EDF	Engineering Data File
EDFT	EVA Development Flight Test
EDLN	Engineering Development Logic Network
EDM	Electronic Discharge Machine
EDO	Extended Duration Orbiter
EDP	Electronic Data Processing
EDR	Engineering Design Review
EDS	Emergency Detection System
EDT	Eastern Daylight Time
EDW	Edwards
EE	End Effector
EED	Electro Explosive Devices(s)
EEE	Electronic, Electrical, Electromechanical
EEEU	End Effector Electronics Unit
EEL	Electrical Equipment List
EEOS	End Effector Operating System
EERWG	Emergency Egress, Escape and Rescue Working Group
EES	Ejection Escape Suit
EFD	Ellington Field
EFFGRO	Efficient Growth (Computer Program)
EFGF	Electrical Flight Grapple Fixture
EFTO	Encrypted for Transmission Only
EGA	Evolved Gas Analysis
EGRET	Energetic Gamma Ray Explorer Telescope
EGT	Exhaust Gas Temperature
EHF	Extremely High Frequency
EHOT	External Hydrogen/Oxygen Tank
EHP	Electrical Horsepower
EI	Electromagnetic Interference
	End Item
	Entry Interface
	Environmental Impact
EIA	Electrical Industries Association
EIASN	End Item Assembly Sequence Number
EIC	Executable Image Compare
EIDP	End Item Data Package

EIFA	Element Interface Functional Analysis
EIO	Engineering Integration Office
EIRP	Effective Isotropic Radiated Power
EIS	End Item Specification
	Environmental Impact Statement
EIU	Engine Interface Unit
EIVT	Electrical and Instrumentation Verification Tests
EKG	Electrocardiogram (record)
	Electrocardiograph (instrument)
EL	Elastic Limit
	Elevation
ELACS	Extended Life Attitude Control System
ELECT	Electrical
	Electronic
ELS	Eastern Landing Site
	Eastern Launch Site
	Emergency Landing Sites
ELT	Emergency Locator Transmitter
EM	Engineering Model
	Engineering Module
	Exception Monitor
EMA	Electro Magnetic Analysis
EMC	Electromagnetic Compatibility
EMCD	Electro-Mechanical Control Diagram
EMCFA	Electromagnetic Compatibility Frequency Analysis
EMEC	Electromagnetic Effects Capability
	Electromagnetic Effects Compatibility
EMF	Electromotive Force
EMI	Electromagnetic Interference
EMN	Engineering Management Network
EMON	Exception Monitoring
EMP	Equipment Mounting Plate
EMR	Engine Mix Ratio
EMRL	Equipment Maintenance Requirements List
EMS	Emergency Medical Services
	Engineering Master Schedule
	Entry Monitor Subsystem
	Environmental Monitoring System
EMSS	Emergency Medical Services System
EMT	Emergency Medical Technician
EMU	Extravehicular Mobility Unit
EMU-TV	Extravehicular Mobility Unit - Television

ENC	Encode
ENG	Engine
ENGR	Engineer
ENGRG	Engineering
ENVIR	Environment
	Environmental
EO	Earth Orbit
	Engine Out
	Engineering Order
EOC	Engine Order Capability
EOD	Explosive Ordnance Disposal
EOF	End of File
EOHT	External Oxygen and Hydrogen Tanks
EOIM	Evaluation of Oxygen Interaction with Materials
EOL	End of Line
EOM	End of Mission
	Engineering Operations Manual
	Equations of Motions
EOR	Earth Orbital Rendezvous
EOS	Earth Observation Satellite
	Earth Orbit Shuttle
	Electrophoresis Operations in Space
	Emergency Oxygen System
EOT	End of Tape
EPA	Environmental Protection Agency
EPC	Error Protection Code
EPD&C	Electrical Power Distribution and Control
EPDS	Electrical Power Distribution System
EPG	Electrical Power Generator
EPICS	Electrolysis Performance Improvement Concept Studies
EPL	Emergency Power Level (Now FPL)
EPMS	Engineering Performance Management System
EPO	Element Project Office
EPP	EVA Power Pack
EPS	Electrical Power Subsystem
EPT	Emergency Procedure Trainer
	Ethylene Propylene Terpolymer
EPTU	Events per Time Unit
EQ	Equivalent
EQUIP	Equipment
ER	Explanation Report
ERA	Electrical Replaceable Assembly

ERB	Engineering Review Board
ERBS	Earth Radiation Budget Satellite
ERO	Engineering Release Operations
ERP	Effective Radiation Power
	Eye Reference Point
ERRC	Expendability Recoverability Repair Capability
ERS	Engineering Release System
ERSI	Elastomeric Reusable Surface Insulation
ESA	European Space Agency
	Explosive Safe Area
ESA-60	Explosive Safe Area 60
ESCA	Electron Spectroscopy for Chemical Analysis
ESCAPE-II	Experiment of the Sun for Complementing the Atlas Payload and for Education
ESD	Electrostatic Discharge
	Emergency Shutdown
	Experiment Systems Division
ESE	Electrical Support Equipment
	Electronic Support Equipment
	EVA Support Equipment
ESOW	Engineering Statement of Work
ESP	Environmental Sensing Platform
ESR	Engineering Support Request
ESRB	Expendable Solid Rocket Booster
ESRO	European Space Research Organization
EST	Eastern Standard Time
	Estimate(d)
ESTL	Electronic Systems Test Laboratory
ESV	Emergency Shutoff Valve
ESVS	Escape System Ventilation System
ET	Edge Thickness
	Event Timer
	External Tank
ETA	Estimated Time of Arrival
	External Tank Attachment
ETC	Estimate to Completion
ETCO	Equipment Transfer/Change Order
ETD	Electrical Terminal Distributor
ETLOW	External Tank Lift-Off Weight
ETR	Eastern Test Range
ETROD	Eastern Test Range Operations Directive
ETS	Electrical Test Set

ETSS	External Tank Separation Subsystem
EU	Electronic Unit
	Engineering Unit
EURECA	European Retrievable Carrier
eV	Electron Volt(s)
EVA	Earned Value Analysis
	Extravehicular Activity
EVAL	Earth Viewing Applications Laboratory
	Evaluation
EVATA	Extravehicular Activity Translational Aid
EVCON	Events Control Subsystem
EVCS	Extravehicular Communications System
EVF	Equipment Visibility File
EVO	Engineering Verification Order
EVS	Equipment Visibility System
EVSS	Extravehicular Space Suit
EWA	Estimated Warehouse Arrival
EWE	Emergency Window Escape
EWR	Engineering Work Request
EXP	Experiment
EXTER	External

F	Fahrenheit
F&GS	Fluid & Gas Systems
F-MMDB	Flight Master Measurement Data Base
FA	Failure Analysis
	Final Assembly
	Flight Aft
	Fully Automatic
FA/COSI	Final Assembly and Closeout System Installation
FAA	Federal Aviation Administration
FAB	Fabricate
	Fabrication
FAC	Facility
	Facility Coordinator
FACI	First Article Configuration Inspection
FACO	Final Assembly Checkout
FACS	Finance and Control System
FADS	Flight Analysis Design System
FAF	First Aerodynamic Flight
FAIR	Fabrication, Assembly, and Inspection Record
FAL	First Approach and Landing (Test)
FAR	Failure Analysis Report
	Federal Aviation Regulation
	Final Acceptance Review
FARE	Fluid Acquisition and Resupply Experiment
FASCOS	Flight Acceleration Safety Cutoff System
FAT	Flight Attitude Table
FAWG	Flight Assignment Working Group
FAX	Facsimile Transmission
FBCS	Fixed Base Crew Station (SMS)
FBS	Firefighters Breathing System
FBV	Fuel Bleed Valve
FC	Fit Check
	Flight Computer
	Flight Control
	Flight Critical
	Fuel Cell
FCA	Frequency Control Analysis
	Functional Compatibility Analysis
FCAP	Flight Control Applications Program
FCC	Flat Conductor Cable
FCCP	Firm Contract Cost Proposal
FCDD	Flight Control Data Bus

FCE	Flight Control Equipment
	Flight Crew Equipment
FCEI	Facility Contractor End Item
FCF	First Captive Flight
FCFM	Flight Combustion Facility Monitor
FCHL	Flight Control Hydraulics Laboratory
FCL	Freon Coolant Loop
FCO	Flight Control Officer
	Functional Checkout
FCOD	Flight Crew Operations Directorate
FCOS	Flight Computer Operating System
	Flight Control Operating System
FCP	Firm Cost Proposal
	Fuel Cell Power Plant
FCPS	Fuel Cell Power Subsystem
FCR	Final Configuration Review
	Flight Certification Review
	Flight Control Room
FCRT	Flight Display CRT
FCS	Federal Communications System
	Flight Control Subsystem
	Flight Control System
	Flight Crew System
FCSS	Flight Control System Software
	Fuel Cell Servicing System
FCT	Flight Control Team
	Flight Crew Trainer
FCV	Flow Control Valve
FCW	Format Control Words
FD	Flight Director
	Function Designator
FDA	Fault Detection and Annunciation
FDAI	Flight Director Attitude Indicator
FDB	Fahrenheit Dry Bulb
FDCF	Flight Design Computational Facility
FDD	Flight Design and Dynamics
FDDD	Flight Design and Dynamics Division
FDF	Flight Data File
FDI	Failure Detection Isolation
	Fault Detection and Isolation
FDM	Frequency Division Multiplexing
FDO	Fee Determination Official
FDRD	Flight Definition and Requirements Directive

FDRR	Flight Design Readiness Review
FDS	Fluid Distribution System
FDSC	Flight Dynamics Situation Complex
FDX	Full Duplex
FEA	Failure Effects Analysis
	Fluids Experiment Apparatus
FEAT	Final Engineering Acceptance Test
FEC	Field Engineering Change
FED	Federal
	Flight Events Demonstration
FEID	Flight Equipment Interface Device
	Functional Engineering Interface Device
FEP	Floral Ethel Propane
	Front End Processor
FES	Flash Evaporator System
FEWG	Flight Evaluation Working Group
FF	Flight Forward
	Flip Flop
FFBD	Functional Flow Block Diagram
FFC	Final Flight Certification
FFD	Functional Flow Diagram
FFP	Firmed Fixed Price
FHE	Facility Handling Equipment
FHF	First Horizontal Flight
FHP	Fuel High Pressure
FIAR	Failure Investigation Action Report
FID	Failure Identification
FIFO	First In-First Out (High Speed Data Buffers)
FIIG	Federal Item Identification Guide
FIM	Flight Integration Manager
FIS	Facility Interface Sheets
FIT	Fault Isolation Test
FKB	Flight Display Keyboard
FL	Feed Lines
	Flowline
FLC	Federal Library Committee
FLT	Flight
FM	Flight Model
	Frequency Modulation
FMA	Flight Margins Assessment
FMCF	First Manned Captive Flight

FMDM	Flex Multiplexer/Demultiplexer
FMEA	Failure Modes and Effects Analysis
FMEC	Forward Master Events Controller
FMOF	First Manned Orbital Flight
FMP	Flight Mission Plan
FMR	Field Modification Request
FMS	Food Management Subsystem
FMSP	Frequency Modulation Signal Processor
FMT	Flight Management Team
FMX	FM Transmitter
Fn	Fuse n
FND	Facility Need Date
FNL	Final
FO/FS	Fail-Operational/Fail-Safe
FOB	Federal Office Building
	Flight Operations Building (KSC)
	Free on Board
FOD	Flight Operations Directorate (JSC)
FOF	First Operational Flight
	First Orbital Flight
FOMR	Flight Operations Management Room
FOP	Flight Operations Panel
	Flight Operations Plan
FOR	Flight Operations Review
FORTTRAN	Formula Translation
FOSDIC	Film Optical Sensing Device for Input to Computers
FOSO	Flight Operations Scheduling Officer
FOSP	Flight Operations Support Personnel
FOV	Field-of-View
	Field of Vision
	First Orbital Vehicle
FP	Freezing Point
	Fuel Pressure
	Functional Path
FPA	Flight Path Angle
FPB	Fuel Preburner
FPBOV	Fuel Preburner and Oxidizer Valve
FPE	Functional Program Element
FPIF	Fixed Price Incentive Fee
FPL	Full Power Level
FPM	Feet per Minute
FPOV	Fuel Preburner Oxidizer Valve

FPR	Flight Performance Reserve
	Flight Problem Report
FPS	Feet per Second
FPSR	Flight Planning and Stowage Review
FPSWG	Flight Production Schedules Working Group
FPS2	Feet Per Second Per Second
FPV	Flow Proportioning Valve
FQR	Flight Qualification Recorder
FR	Firing Room
	Frame
FRCB	Flight Rules Change Board
FRCS	Forward Reaction Control Subsystem
FRD	Flight Requirements Document
FRED	Final Reconfiguration Engineering Drawing
FREQ	Frequency
FRF	Flight Readiness Firing
FRGF	Flight Releasable Grapple Fixture
FROZPIPE	Frozen Startup of a Heat Pipe in Microgravity
FRR	Flight Readiness Review
FRRID	Flight Readiness Review Item Disposition
FRS	Flight Readiness Statement
FRSI	Felt Reusable Surface Insulation
	Flexible Reusable Surface Insulation
FRT	Flight Readiness Test
	Frequency Response Test
FRWG	Flow Review Working Group
FS	Fail Safe
	Federal Specification
	Fire Suppression
	Flight System
	Full Scale
FSAA	Flight Simulator for Advanced Aircraft (ARC)
FSC	Federal Stock Classification
FSCM	Federal Supply Code for Manufacturers
FSE	Flight Support Equipment
FSF	First Static Firing
FSH	Flight Support Host
FSI	Final Systems Installation
FSIM	Functional Simulator
FSIWG	Flight Systems Integration Working Group
FSK	Frequency Shift Keyed
FSL	Flight Simulation Laboratory
	Flight Systems Laboratory
FSLT	First Sea Level Test

FSN	Federal Stock Number
FSOS	Ferry Stepover Sites
FSR	Final System Release
FSRR	Flight System Readiness Review
FSRS	Flight System Recording System
FSS	Fire Suppression System
	Fixed Service Structure
	Flight Support Station
	Flight Support Structure
	Flight Systems Simulator
FSSR	Functional Subsystem Software Requirements
FSTE	Factory Special Test Equipment
FSW	Flight Software
ft	Foot, Feet
FT	Flight Test
ft c	Footcandle(s)
ft-sec	Feet-Second(s)
FT ²	Square Feet
FT ³	Feet Cubed
FTA	Fatigue Test Article
	Fault Tree Analysis
FTC	Flight Test Conductor
FTE	Factory Test Equipment
FTIR	Fourier Transform Infrared
FTIS	Flight Test Instrumentation System
FTO	Functional Test Objective
FTOH	Flight Team Operations Handbook
FTP	Flight Techniques Panel
	Functional Test Progress
FTR	Flight Test Requirement
FTRD	Flight Test Requirements Document
FTS	Flight Test Station
	Flight Test System
FTS/DTF	Flight Telerobotics Servicer/Development Test Flight
FTSOD	Flight Test and Supplemental Objectives Document
FUNCT	Functional
FUO	Follow-up Output
FUS	Fuselage
FV	Flight Version
	Front View
FVF	First Vertical Flight
FVP	Flight Verification Payload

FWB	Fahrenheit Wet Bulb
FWD	Forward
FWW	Food, Water and Waste
FWWMS	Food, Water and Waste Management Subsystem
FY	Fiscal Year

THIS PAGE INTENTIONALLY LEFT BLANK

g	Acceleration Due to Gravity
	Gram(s)
G	Gravity
G&A	General and Administrative
G&C	Guidance and Control
G&N	Guidance and Navigation
G-A	Ground-to-Air
G-G	Ground-to-Ground
G-MEM	GPC Memory
G/E	Graphite Epoxy
G/T	Antenna Gain-to-Noise Temperature Ratio
GA	Gauge
	General Assembly
	Gyro Assembly
GAC	Grumman Aerospace Corporation
GAIN	Graphic Aids for Investigating Networks
GAM	Gamma
GAMES-STF	Gravity and Magnetic Earth Survey - Sub-Satellite Test Flight
GANE	GPS Attitude and Navigation Experiment
GAO	General Accounting Office
GAP	Goal Automatic Procedure
GAPC	Get Away Special Autonomous Payload Controller
GAPL	Group Assembly Parts List
GAS	Get Away Special
G-006	GAS: University of Mexico (UNAM)
G-022	GAS: Periodic Volume Stimulus Method/ESA
G-046	GAS: Special Payloads Group
G-071	GAS: Ball Bearing Experiment
G-133	GAS: Brigham Young University
G-141	GAS: Anal of Oscillatory State of Thermocapillary - DFVLR
G-142	GAS: Subcooled & Saturated Pool Boiling - DFVLR
G-163	GAS: Mercuric Iodide
G-169	GAS: Calif Polytech State Univ/Rockwell International
G-178	GAS: Sierra College, Rocklin, California
G-203	GAS: New Mexico State University
G-223	GAS: USC/Los Angeles AIAA
G-254	GAS: Utah State University
G-276	GAS: American Chemical Society/Douglas Freeman High School
G-300-02	GAS: Matra/Laboratoire de Genie Electrique de Paris (L. G. E. P.)
G-304	GAS: Environment Canada and Bristol Aerospace Limited
G-312	GAS: Naval Research Lab/USAF

G-324	GAS: Charleston County School District
G-342	GAS: United States Air Force Academy
G-387/388	GAS: Australian Space Office and Auspace Limited
G-399	GAS: Dr. Ronald Nelson, Inc.
G-417	GAS: American Association for Promotion of Science
G-450	GAS: American Institute of Aeronautics & Astronautics
G-452	GAS: Society of Japanese Aerospace Companies, Inc.
G-453	GAS: Society of Japanese Aerospace Companies, Inc.
G-454	GAS: Society of Japanese Aerospace Companies, Inc.
G-456	GAS: Society of Japanese Aerospace Companies, Inc.
G-458	GAS: Society of Japanese Aerospace Companies, Inc.
G-459	GAS: Society of Japanese Aerospace Companies, Inc.
G-485	GAS: European Space Agency
G-491	GAS: Teledyne Brown Engineering, Inc.
G-503	GAS: University of Alabama, Students for Exploration and Development of Space
G-508	GAS: Goddard Space Flight Center
G-514	GAS: Orbiter Stability Experiment
G-525	GAS: Brighton High School
G-535	GAS: NASA Lewis Research Center
G-536	GAS: Lewis Research Center
G-541	GAS: Swedish Space Corporation
G-557	GAS: Two-Phase Capillary Pumped Loop
G-562	GAS: National Research Council of Canada, Space Division
G-568	GAS: Great Valley High School, Devault, Pennsylvania
G-601	GAS: University of California, San Diego
G-645	GAS: Mill Creek Township School District, Erie, Pennsylvania
G-647	GAS: National Research Council of Canada
GAS-BAY	Get-Away Special Canister Assembly
GBA	GAS Bridge Assembly
GBI	Grand Bahama Island
GBL	Government Bill of Lading
GBR	Glass Bead Rating
GBS	Ground Based Software
GC	Generally Clean
	Gigacycles (1000 megacycles)
GCA	Ground Controlled Approach
GCC	Ground Computer Complex
GCDCS	Ground Checkout Display and Control System
GCI	Ground Controlled Interception
GCIL	Ground Control Interface Logic

GCL	Ground Coolant Loop
GCMS	Gas Chromatograph/Mass Spectrometer
GCOS	General Computer Operating System
GCS	Guidance Cutoff Signal
GCTS	Ground Communications Tracking System
GCU	Generator Control Unit
	Gyro Coupling Unit
GDBS	Generalized Data Base System
GDP	Generalized Documentation Processor
GDS	Goldstone, California (STDN)
GE	General Electric
GEN	Generator
GERT	Graphical Evaluation and Review Technique
GET	Ground Elapsed Time
GETS	Ground Equipment Test Sets
GF	Grapple Fixture
GF&P	Gases, Fluids and Propellants
GFAE	Government Furnished Aircraft Equipment
GFAS	Grapple Fixture Axis System
GFD	Government Furnished Data
GFE	Government Furnished Equipment
GFM	Government Furnished Material
GFP	Government Furnished Property
GFRP	Graphite Fiber Reinforced Plastic
GFS	Government Furnished Software
GFY	Government Fiscal Year
GG	Gas Generator
	Gravity Gradient
GHA	Good Housekeeping Area
	Greenwich Hour-Angle
GHCD	Growth Hormone Concentration & Distribution in Plants
GHe	Gaseous Helium
GHz	Gigahertz
GH ₂	Gaseous Hydrogen
GICHAR	Generic Integrated Cargo Hazard Assessment Report
GIDEP	Government-Industry Data Exchange Program
GIM	Generalized Information Management
GIWG	Ground Interface Working Group
GLOW	Ground Lift-off Weight
GLP	Goal Language Processor
GLS	Ground Launch Sequencer
GLY	Glycol

GMM	Geometric Math Model
GMT	Greenwich Mean Time
GN	Ground Network
GNC	Guidance and Navigation Control
GN&C	Guidance, Navigation and Control
GNCFTS	GN&C Flight Test Station
GNCIS	Guidance, Navigation and Control Integration Simulator
GNCTS	GN&C Test Station
GND	Ground
GND C/O	Ground Checkout
GNP	Gross National Product
GNS	Guidance & Navigation Simulator
GN ₂	Gaseous Nitrogen
GO	General Order
GOAL	Ground Operations Aerospace Language
GOCA	Ground Operations Control Area
GOES	Geostationary Operational Environment Satellite
GOM	Ground Operations Manager
GOMMS	Ground Operations and Material Management Systems
GOPG	Ground Operations Planning Group
GORP	Ground Operations Requirements Plan
GOSAMR	Gelation of SOLS: Applied Microgravity Research
GOSS	Ground Operations Support System
GOWG	Ground Operations Working Group
GOX	Gaseous Oxygen
GO ₂	Gaseous Oxygen
GP	General Purpose
GPAS	General Purpose Airborne Simulator
GPC	General Purpose Computer
GPCB	Goal Program Control Block
GPL	Goal Processing Language
GPME	General Purpose Mission Equipment
GPO	Guidance and Procedures Officer
GPRM	Goal Test Procedure Release Notice
GPS	Global Positioning System
GPTE	General Purpose Test Equipment
GPUR	Goal Test Procedure Update Request
gr/H ₂ O/lb	Grains of Water per Pound
GRAM	Global Reference Atmospheric Model
GRE	Gamma Ray Explorer
GRID	Graphic Retrieval and Information Display

GRO	Gamma Ray Observatory
GRTLS	Glide Return to Launch Site
GSA	General Services Administration
GSCU	Ground Service Cooling Unit
GSDL	Ground Software Development Laboratory
GSE	Government Supplied Equipment
	Ground Support Equipment
GSEL	Ground Support Equipment List
GSFC	Goddard Space Flight Center
GSi	Government Source Inspection
GSIU	Ground Standard Interface Unit
GSS	Ground Support Software
GSSI	Ground Support System Integration
GSSW	Ground Systems Software
GSTDN	Ground Space Flight Tracking and Data Network
GSVP	Ground Support Verification Plan
GT	Ground Test
GT&A	Ground Test and Acceptance
GTA	Gas Tungsten Arc
	Ground Test Article
GTI	Grand Turk Island
	Ground Test Instrumentation
GTM	Ground Test Motor
GTOD	Greenwich True-of-Date
GTS	General Test Support
	GNC Test Station
GUCP	Ground Umbilical Carrier Plate
GUID	Guidance
GUL	Ground Support Equipment Utilization List
GVT	Ground Vibration Test
GVTA	Ground Vibration Test Article
GW	Gross Weight
GWA	General Work Area
GWM	Guam (STDN)
GYM	Guaymas, Mexico (Remote Site)

THIS PAGE INTENTIONALLY LEFT BLANK

h	Hour Angle
H	Horizontal
H/S	Heat Shield
H/T	Heat Treat
H/W	Hardware
H ₂	Hydrogen
HA	Hazard Analysis
HAA	High Altitude Abort
HAC	Heading Alignment Cones
	Hughes Aircraft Company
HAFB	Holloman AFB
HAINS	High Accuracy Inertial Navigation System
HAL	High-Order Assembly Language
HAS	Hold-down Alignment and Support
	Hydraulic Actuation System
	Hydrogen Actuation System
HAW	Hawaii (STDN)
HB	High Bay
HBW	Hot Bridge Wire
HC	Head Count
	Hybrid Computer
	Hydrocarbons
HCF	High Cycle Fatigue
HCL	Hydrogen Chloride
HCM	Hard Copy Module
HDA	Housekeeping Data Acquisition
HDP	Holddown Post
HDQ	Headquarters
HDRR	High Data Rate Recorder
HDW	Hardware
HDWE	Hardware
He	Helium
He-Ne	Helium-Neon
HE ₂	Helium
HEAP	High Energy Aim Point
HEDS	Human Exploration and Development of Space
HELIAX	Heli axial Cable
HEMI	Hemispherical
HEO	High Energy Orbit
HEPA	High Efficiency Particle Accumulator
	High Efficiency Particle Air
	High Efficiency Particle Arrestor
	High Efficiency Particulate Air (Filter)

HER	HIM Equipment Rack
HERCULES	Hand-Held, Earth-Oriented, Real-Time, Cooperative, User Friendly, Location-Targeting and Environmental System
HF	High Frequency Horizontal Flight
HFA	High Frequency Accelerometer
HFC	Heat Flow and Convection Hydraulic Flight Control
HFCT	Hydraulic Flight Control Test
HFCV	Helium Flow Control Valve
HFT	Horizontal Flight Test
HFTF	Horizontal Flight Test Facility
HFTS	Horizontal Flight Test Simulator
HFX	High Frequency Transceiver
HG	Mercury
HGA	High Gain Antenna
HGDS	Hazardous Gas Detection System
HGM	Hot-Gas Manifold
HGVT	Horizontal Ground Vibration Test
HI	Honeywell, Inc.
HIM	Hardware Interface Module
HIPO	Hierarchical Input-Process Output
HL	Hard Line Heel Line Hinge Line
HMC	Hybrid Microcircuit
HMF	Horizontal Mating Facility Hypergol Maintenance Facility
HMS	History Memory System
HO	Hydrogen-Oxygen Medium Strength ($6V < E \leq 40V$) Signal
HOL	High-Order Language
HORIZ	Horizontal
HOSC	Huntsville Operations Support Center
HP	High Pressure Human Performance
HPF	Hazardous Processing Facility Hour(s)
HPFTP	High-Pressure Fuel Turbopump
HPFTP/AT	High-Pressure Fuel Turbopump/Alternate Turbopump
HPG	High-Pressure Gas
HPGS	High Pressure Gas System
HPI	High Performance Insulation

HPM	High-Performance Motor
HPOP	High Pressure Oxidizer Pump
HPOTP	High-Pressure Oxidizer Turbopump
HPOTP/AT	High-Pressure Oxidizer Turbopump/Alternate Turbopump
HPP-02	Heat Pipe Performance Reflight
HPS	Hydraulics Power System
HPU	Hydraulic Power Unit
HQ	Headquarters
HR	Hazard Report
	Hour
	Hydrogen Relief
HRDR	High Rate Digital Recorder
HRIR	High Resolution Infrared Radiometer
HRL	Horizontal Reference Line
HRM	High Rate Multiplexer
HRPPC	Human Research Policy and Procedures Committee
HRPS	Hazard Reduction Precedence Sequence
HRRS	Honda Ridge Relay Site
HRSGS	High Resolution Shuttle Glow Spectroscopy
HRSI	High Temperature Reusable Surface Insulation
HRT	High Resolution Tracker
HS	High Speed
HSC	Hardware/Software Coordination
HSCU	Hydraulic Supply and Checkout Unit
HSD	Hamilton Standard Division
HSF	Hypergol Servicing Facility
HSI	Horizontal Situation Indicator
HSL	Hardware Simulation Laboratory
HST	Hubble Space Telescope
HSTSM	Hubble Space Telescope Servicing Module
HT	Heat Transfer
HTD	HEDS Technology Demonstration
HTG	Heating
HTLL	High Test Level Language
HTPB	Hydroxyl Terminated Polybutadiene
HTS	Heat Transfer System
HUD	Heads Up Display
HUL	Hardware Utilization List
HUMS	Hydrogen Umbilical Mass Spectrometer
HV	High Voltage
HVAC	Heating, Ventilating, and Air Conditioning
HVSL	Holidays, Vacation, and Sick Leave

HW	Hardware
	Headwind
	Hotwire
HW/SW	Hardware/Software
HX	Heat Exchanger
HYD	Hydraulic Subsystem
	Hydraulics
HYGL	Hypergolic
HYPACE	Hybrid Programmable Attitude Control Electronics
HZ	Hertz (cycles per second)

I&C	Installation and Checkout
I&CS	Instrumentation and Communications
I&R	Interchangeability and Replacement
I&RS	Instrumentation and Range Safety
I&S	Interchangeability and Substitutability
I/CA	Intercom A
I/CB	Intercom B
I/F	Interface
I/F RFTD	Interface Radio Frequency Terminal Distributor
I/F TD	Interface Terminal Distributor
I/O	Input/Output
I/OM	Input/Output Module
I/T	Intertank
IA	Implementation Agency
	Input Axis
	Inverter Assembly
	Issuing Agency
IAA	International Aerospace Abstracts
IAD	Interface Analysis Document
IAE	Inflatable Antenna Experiment
IAL	Immediate Action Letter
IAS	Indicated Air Speed
IAT	Integrated Avionics Test
IAV	Inventory Adjustment Voucher
IB	Instruction Book
IBM	International Business Machines, Inc.
IBSS	Infrared Background Signature Survey
IC	Incremental Cost
	Information Center
	Integrated Circuit
	Interchange
	Intercommunications
	Interim Change
ICA	Instrument Checkout Equipment
	Item Change Analysis
ICAO	International Civil Aviation Organization
ICAPC	Increased Capability Adaptive Payload Carrier
ICB	Integration Control Board
	Interim Change Bulletin
	Interrupt Control Block
ICBC	IMAX Cargo Bay Camera
ICC	Inter-Computer Channel
	Inter-Computer Communication
	Inter-Computer Communication Channel
	Interface Control Chart
	Interstate Commerce Commission

ICCN	Intercenter Council for Computer Networking
ICCP	Interface Coordination and Control Procedure
ICD	Interface Control Document
ICDR	Incremental Critical Design Review
ICDU	Inertial Coupling Data Unit
ICE	Instrument Checkout Equipment
	Instrument/Communication Equipment
ICHA	Integrated Cargo Hazard Analysis
ICHR	Integrated Cargo Hazard Report
ICMT	Intercontract Material Transfer
ICO	Integrated Checkout
ICP	Inventory Control Point
ICRS	Intercom Remote Station
ICS	Interpretive Computer Simulator
ICT	Influence Coefficient Tests
	Interface Control Tooling
ICWG	Interface Control Working Group
ID	Identification
	Identification Data
	Inside Diameter
	Interface Device
	Interface Document
IDA	Interface Data Agreement
	Interface Definition Agreement
	Interface Description Agreement
IDAS	Integrated Data Acquisition System
IDD	Interface Definition Document
IDL	Indentured Drawing List
IDMR	Intermediate and Depot Maintenance Requirements
IDMRD	Intermediate and Depot Maintenance Requirement Document
IDP	Integrated Display Processor
IDR	Initial Design Review
	Integration Discrepancy Report
	Interim Discrepancy Report
IDRD	Information Definition Requirements Document
IDS	Item Description Sheet
IDSD	Institutional Data Systems Division (JSC)
IDSO	Interdivisional Sales Order
IDU	Interface Demonstration Unit
IDWA	Inter Divisional Work Authorization
IEA	Integrated Electronic Assembly
IECM	Induced Environment Contamination Monitor

IEH	International Extreme Ultraviolet Hitchhiker
IF	Intermediate Frequency
IFA	In-flight Anomaly
	Interface Functional Analysis
IFASC	Integrated Functions Assessment Steering Committee
IFB	Invitation For Bid
IFM	Inflight Maintenance
IFR	Instrument Flight Rules
IFU	Interface Unit
IG	Internal Guidance
IG + 2P	Igloo + 2 Pallet
IGA	Inner Gimbal Angle
IGM	Interactive Guidance Mode
IGMM	Integrated Geometric Math Model
IGN	Ignite
	Ignition
IGS	Inner Glide Slope
IHTV	Interim Hypersonics Test Vehicle
IIT	Integrated Interface Checkout
I-Load	Initial Computer Data Load
	Initialization Load
ILC	Integrated Load Checkout
ILP	Integrated Logistics Panel
ILS	Instrument Landing System
	Integrated Logistics System
ILS/LAR	Integrated Logistics System and Logistics Assessment Review
ILSP	Integrated Logistics Support Plan
ILUV	I-Loads Update Verification
ILUV II	I-Loads Update Verification, Phase II
IMAX	Imax Camera
IMCF	Intermediate Medical Care Facility
IMIC	Integrated Management Information Computer
IML	Inner Mold Line
	Inside Mold Line
	International Microgravity Laboratory
IMPL	Implement
IMS	Information Management System
	Inventory Management System
IMSP	Integrated Mission Support Plan
IMU	Inertial Measurement Unit
IN	Inch(es)
INBD	Inboard

INC	Installation Notice Card
INCL	Include
INCO	Instrumentation and Communications Officer
INCR	Increment
IND	Indicator
INIT	Initial
	Initiate
INMARSAT	International Maritime Satellite
INS	Inertial Navigation System
INSTL	Installation
INSTR	Instrument
	Instrumentation
INSTRUM	Instrumentation Subsystem
INT	Integrated Test
INTEGR	Integrate
	Integrated
	Integration
INTRLVR	Interleaver
INV	Inverter
INV MGT	Inventory Management
IOA	Input/Output Adapter
IOB	Input/Output Buffer
IOC	Initial Operational Capability
	Input/Output Controller
IOCM	Interim Operational Contamination Monitor
IOM	Input/Output Module
IOP	Input-Output Processor
IOPL	Integrated Open Problem List
IOS	Indian Ocean Ship (Tracking)
	Input/Output Supervision
	Instructor Operator Station
IP	Identification of Position
	Integration Plan
	Intermediate Pressure
IPAS	Integrated Problem Assessment System
IPB	Illuminated Push Button
	Illustrated Parts Breakdown
IPC	Intermittent Positive Control
IPCL	Instrumentation Program and Component List
IPDR	Incremental Preliminary Design Review
IPE	Industrial Plant Equipment
IPL	Indentured Parts List
	Initial Program Load

IPMP	Investigation into Polymer Membranes Processing
IPR	Interim Problem Report
IPS	Inches per Second
	Instrument Pointing System
	Instrumentation Power Subsystem
	International Pipe Standard
	Inverter Power Supply
IPT	Integrated Product Team
	International Pipe Thread
IR	Infrared
	Inside Radius
IRAN	Inspection and Repairs as Necessary
IRAR	Internal Variable
IRD	Information Requirements Descriptions
	Information Requirements Document
IRE	Internal Reflectance Elements
IRG	Inertial Rate Gyro
IRIG	Inertial Rate Integrating Gyro
	Inter-Range Instrumentation Group
IRIG-B	Inter-Range Instrumentation Group B
IRIS	Italian Research Interim Stage
IRL	Interface Requirement List
IRME	Initiator Resistance Measuring Equipment
IRN	Interface Revision Notice
IRR	Inspection Rejection Report
IRTCM	Integrated Real-Time Contamination Monitor
IRU	Inertial Reference Unit
IS	Installation Support
ISAC	Intelsat Solar Array Coupon
ISEM	ITA Standardized Experiment Module
ISF	Industrial Space Facility
ISI	Initial Systems Installation
ISIL	Interim Support Items List
ISL	Inertial Systems Laboratory
ISN	Integrated System Number
Isp	Specific Impulse
ISP	Initial Specific Impulse
ISR	Initial System Release
ISS	Instruction Summary Sheet
ISSA	International Space Station Alpha
ISSAP	International Space Station Alpha Program
ISSL	Initial Spares Support List
ISSP	International Space Station Program
IST	Integrated Systems Test

ISTA	Intertank Structural Test Assembly
ISTB	Integrated Subsystem Test Bed
ISVT	Integrated System Verification Test
ISWE	International Space Welding Experiment
ITA	Instrumentation Technology Associates, Inc.
ITE	Instrumentation Test Equipment
ITEPC	Inter-Mars Tissue Equivalent Proportional Counter
ITI	Inspection and Test Instruction
ITMM	Integrated Thermal Math Model
ITS	Instrumentation Telemetry Station
IU	Instrument Unit
IUCS	Instrumentation Update Command System
IUS	Inertial Upper Stage
	Interim Upper Stage
IV	Integrated Vehicle
	Intravehicular
IV&T	Integrated Verification and Testing
IV&V	Independent Verification and Validation
IVA	Intravehicular Activity
IVAR	Internal Variable
IVBC	Integrated Vehicle Baseline Characterization
	Integrated Vehicle Baseline Configuration
IVE	Interface Verification Equipment
IVT	Interface Verification Test
IWBS	Indirect Work Breakdown Structure
IWCS	Improved Waste Collection System
IWG	Interface Working Group

J/M	Jettison Motor
JAEL	JSC Avionics Engineering Laboratory
JAN	Joint Army-Navy
JAS	Journal of Aerospace Science
JB	Junction Box
JCL	Job Control Language
JCP	Joint Power Conditions
JCT	Junction
JDX	Joint Damping Experiment
JEA	Joint Endeavor Agreement
JEMES	Japanese Experiment Module Elm Exposed Section
JEMPS	Japanese Experiment Module Elm Pressurized Section
JFD	Japanese Experiment Module (JEM) Flight Demonstration
*JIMP	Joint Integration Management Panel
JIR	Job Improvement Request
JIS	Joint Integration Schedule
JMICB	Joint Mission Integration Control Board
Jn	Connector n
JO	Job Order
JOC	Joint Operations Center
JOD	Joint Occupancy Date
JOP	Joint Operating Procedure
JOR	Job Order Request
JP	Jet Propellant
	Jet Propulsion
JPC	Joint Power Conditioner
JPL	Jet Propulsion Laboratory
JPP	Joint Program Plan
*JPR	Joint Program Review
JPRCB	Joint Program Requirements Control Board
JRB	Joint Review Board
JSC	Johnson Space Center
	Lyndon B. Johnson Space Center (formerly MSC)
JSE	Jitter Suppression Experiment
JST	Joint Systems Test
JURG	Joint Users Requirements Group

* Deleted from requirements when SSFP was redesignated as ISSAP

THIS PAGE INTENTIONALLY LEFT BLANK

K	Thousand
	Kelvin (Scale)
	Keyboard
	Kilo
KAFB	Kelly Air Force Base
KATS	KSC Avionics Test Set
KB	Kilobit
KBPS	Kilobits per Second
KBU	Keyboard Unit
KCAS	Knots Calibrated Airspeed
KCR	KSC Change Request
	KSC Software Change Request
KCS	Key Configuration Studies
keV	Kilo Electron Volt(s)
kg	Kilogram(s)
kg/cm ²	Kilograms per Square Centimeter
KHZ	Kilohertz
KIAS	Knots Indicated Air Speed
kJ/hr	Kilojoules per Hour
km	Kilometer(s)
kN	Kilonewton(s)
KNO	Kano, Nigeria (Remote Site)
kPa	Kilopascal(s)
KPS	Kilobits per Second
KSC	John F. Kennedy Space Center
Ku-band	10.9 to 35 Gigahertz per Second
KUSP	Ku-band Signal Processor
kVa	Kilovoltampere(s)
KW	Kilowatt
kWh	Kilowatt Hour(s)
KYBD	Keyboard

THIS PAGE INTENTIONALLY LEFT BLANK

L	Launch or Lift-Off
	Left
	Time of Launch
L&D	Landing and Deceleration
L&L	Launch and Landing
L&S	Logistics and Support
L&T	Laboratory and Test
L-	Launch Minus
L-L	Line-to-Line
L/D	Length-to-Diameter
	Lift to Drag (Ratio)
L/O	Lift-Off
L/S	Launch Site
L3	Latitude Longitude Locator
LA	Launch Abort
	Launch Aft
	Launch Area
	Launch Azimuth
	Lightning Arrester
LAAD	Los Angeles Aircraft Division (Rockwell)
LACB	Landing Aids Control Building
LAGEOS	Laser Geodynamic Satellite
LAGS	Launch Abort Guide Simulation
LAR	Laminar Angular Rate Sensor
LARC	Langley Research Center
LAT	Latch
	Lateral
	Latitude
	Lot Acceptance Test
LB	Load Bank
	Low Bay
	Pound
	Pound Force
lb-sec	Pounds-Second(s)
LBDT	Low Bay Dolly Tug
lbf	Pounds Force
lbs/min	Pounds per Minute
LC	Launch Complex
LCA	Load Controller Assembly
LCC	Launch Commit Criteria
	Launch Control Center
LCCD	Launch Commit Criteria Document

LCD	Launch Countdown Liquid Crystal Display
LCF	Low Cycle Fatigue
LCH	Latch
LCMS	Low Cost Modular Spacecraft
LCN	Logic Change Notice
LCR	Low Cross Range
LCU	Line Coupling Unit
LCW	Left Cross Wind
LDB	Launch Data Bus
LDCE	Limited Duration Space Environment Candidate Materials Exposure
LDEF	Long Duration Exposure Facility
LDEF RET	Long Duration Exposure Facility - 1A - Retrieval Mission
LDS	Landing/Deceleration Subsystem Landing, Deservicing and Safing Loads
LE	Launch Escape Leading Edge
LEA	Logistics Engineering Analysis
LEC	Lockheed Electronics Company
LED	Light Emitting Diode
LEO	Low Earth Orbit
LERC	Lewis Research Center
LESA	LEASAT Equipment Stowage Assembly
LESS	Leading Edge Structure Subsystem
LETF	Launch Equipment Test Facility
LF	Launch Facility Launch Forward Load Factor Low Frequency
LFSAH	Lightweight Flexible Solar Array Hinge
LG	Landing Gear
LGA	Low Gain Antenna
LH	Lefthand Local Horizontal
LH ₂	Liquid Hydrogen
LHA	Local Hour-Angle
LHCP	Left Hand Circularly Polarized
LHP	Loop Heat Pipe
LID	Leadless Inverted Device
LIM	Limit

LIMS	Logistics Inventory Management System
LIOH	Lithium Hydroxide
LITE	LIDAR in Space Technology Experiment
LL	Launch and Landing
	Launch Left
	Long Lead
	Low Level
LLCF	Launch and Landing Computational Facilities
LLCO	Low-level Cutoff
LLS	Launch and Landing Site
LM	Lockheed–Martin
	Long Module
LM + 1P	Long Module + 1 Pallet
LME	Liquid Motion Experiment
LMF	Lower Mid-Fuselage
LMK	Landmark
LMS	Load Measurement System
	Logistics Master Schedules
LMSC	Lockheed Missiles and Space Corporation
LMSO	Lockheed Martin Space Operations
LN ₂	Liquid Nitrogen
LNCH	Launch
LNDG	Landing
LO	Launch Operations
LO ₂	Liquid Oxygen
LOA	Landing Operations Area
	Launch Operations Area
LOAPS	List of Applicable Publications
LOB	Line of Balance
LOC	Launch Operations Complex
LOE	Level of Effort
LOGO	Limit of Government Obligation
LON	Launch on Need
LOPE	Large ORU Protective Enclosure
LORA	Level of Repair Analysis
LORAN	Long Range Navigation
LOS	Line of Sight
	Loss of Signal
LOSP	Landing Operations Support Panel
LOV	Limit of Visibility
	Loss of Visibility
LOWG	Landing Operations Working Group
LOX	Liquid Oxygen

LP	Launch Pad
	Low Pressure
LPAC	Localized Payload Air Conditioning System
LPD	Launch Procedure Document
LPFTP	Low-Pressure Fuel Turbopump
LPM	Lines per Minute
LPOP	Low-Pressure Oxidizer Pump
LPOTP	Low-Pressure Oxidizer Turbopump
LPR	Line Printer
LPS	Launch Processing System
LPW	Lumens per Watt
LQHW	Left Quartering Headwind
LQTW	Left Quartering Tailwind
LR	Launch Right
LR/LD	Line Receiver/Line Driver
LRD	Landing Recovery Director
LRSI	Low Temperature Reusable Surface Insulation
LRU	Line-Replaceable Unit
LRV	Launch Readiness Verification
LS	Limit Switch
LS/ST	Light Shield/Star Tracker
LSA	Launch Services Agreement
LSB	Least Significant Bit
	Lower Side Band
LSC	Linear Shaped Charge
LSCC	Large Screen Cinema Cameras
LSE	Launch Support Equipment
	Life Support Equipment
LSEAT	Launch Systems Evaluation Advisory Team
LSFR	Launch Site Flow Review
LSO	Landing Support Officer
LSOC	Lockheed Space Operations Company
LSR	Land Sea Rescue
	Launch Site Recovery
LSRR	Launch Site Requirements Review
LSS	Launch Support Services
	Life Support Subsystem
LSSC	Launch Support Services Contractor
LSSF	Life Sciences Support Facility
LSSM	Launch Site Support Manager
LSSP	Launch Site Support Plan

LST	Large Space Telescope
	Launch Support Team
	Liquid Storage Tank
	Local Standard Time
LTCT	Launch Trajectory Constraints Table
LTM	Loads Transformation Matrix
LTMCC	Large Throat Main Combustion Chamber
LTQS	Launch Trajectory Qualification System
LUT	Launcher-Umbilical Tower
LV	Launch Vehicle
	Lift Vector
	Local Vertical
	Low Voltage
LVDC	Launch Vehicle Digital Computer
LVDT	Linear Voltage Differential Transformer
LVLH	Local Vertical/Local Horizontal
LWKA	Lightweight Keel Actuator
LWKL	Lightweight Keel Latch
LWLL	Lightweight Longeron Latch
LWR	Lower
LWS	Lightning Warning System
LWT	Lightweight Tank

THIS PAGE INTENTIONALLY LEFT BLANK

m	Meter
M	Mach
	Maintainability
	Mandatory
	Mass
	Million
M&C	Maintenance and Checkout
M&M	Materials and Maintenance
M&P	Materials and Processes
M&R	Maintenance and Refurbishment
	Maintenance and Repair
M/S	Measurement Stimuli
M/SCI	Mission/Safety Critical Item
M/U	Mockup
M+R	Maintenance & Repair
M1	Segment Middle 1 (SSF/MB-04)
M50	Aries Mean of 1950
MA	Maintenance Ability
	Material Authorization
MA&P	Maintenance Analysis and Planning
MAB	Materials Applications Board
MAC	Main Display Console
	Maintenance Advisory Committee
	Mean Aerodynamic Chord
	Military Aircraft Command
	Military Airlift Command Management Action Center (HQ)
	Multi-Access Computer
MACE	Middeck Active Control Experiment
MACH	Machine
MACO	Major Assembly Checkout
MACRO	Merge and Correlate Recorded Output (program)
MACS	Modular Attitude Control System
MAD	Madrid, Spain (STDN)
	Maintenance Analysis Data
MADRE	Manufacturing Data Retrieval System
MADS	Modular Auxiliary Data System
MAF	Michoud Assembly Facility
MAG	Magnetic
	Magnitude
MAI	Machine-Aided Indexing
MAL	Malfunction
	Material Allowance List
MAN	Manual
MAP	Maintenance Analysis Program
	Message Acceptance Pulse
	Missed Approach Point

MAR	Middeck Accommodations Rack
MARS	Martin Automatic Reporting System
	Mission Automatic Reconfiguration System
	Mission to America's Remarkable Students
	Modular Airborne Recorder System
MARRS	Mission Analyses and Reconfiguration Requirements System
MAST	Measurement and Stimuli
	Military Applications of Ship Tracks
MAST II	Measurement and Stimuli - Phase II
MATCO	Material Analysis, Tracking, and Control
MATL	Material
MAU	Million Accounting Units
MAX	Maximum
MAX-Q	Maximum Dynamic Pressure
MB	Motion Base
MB/S	Megabits per Second
MBCS	Motion-Base Crew Station (SMS)
MBFP	Manufacturing, Build and Flow Plan
MBI	Multibus Interface
MBO	Management By Objective
MBPS	Megabits per Second
MBS	Mobile Remote Servicer Base System (SSF/MB-06 [MTC])
MC	Memory Configuration
	Mission Capability
MCA	Motor Control Assembly
MCBF	Mean Cycle Between Failures
MCC	Main Combustion Chamber
	Mission Control Center
MCC-DOD	Mission Control Center - DOD
MCC-H	Mission Control Center - Houston
MCC-K	Mission Control Center - Kennedy
MCC-NASA	Mission Control Center - NASA
MCCC	Mission Control and Computing Center
MCCS	Mission Control Center Simulation (system)
MCD	Molecular Column Density
MCDS	Multifunction Cathode Ray Tube Display System
MCDU	Multifunction CRT Display Unit
MCF	Maintenance and Checkout Facility
MCIU	Manipulator Controller Interface Unit
MCL	Master Configuration List
MCN	Maintenance Change Notice
	Master Change Notice
MCO	Mission Control Operations

MCP	Master Change Proposal
	Master Computer Program
	Materials Control Plan
	Measurements Control Procedure
	Mission Control Programmer
MCPP	Mission Configuration Product Plan
MCPS	Major Cost Proposal System
MCR	Master Change Record
MCS	Maintenance and Checkout Station
	Measurements Calibration System
MCW	Modulated Continuous Wave
MD	Master Dimension
	Mission Director
MDA	Main Distribution Assembly
	Maintainability Design Approach
MDAC	McDonnell Douglas Aircraft Corporation
MDAR	Malfunction Detection, Analysis and Recording
MDAS	Mission Data Acquisition System
MDB	Mission Data Book
MDC	Main Display Console
	McDonnell Douglas Corporation
	Mission Duty Cycle
	Maintenance Data Collection System
MDCS	Master Digital Command System
	Material Data Collection System
	Mating and Demating Device
MDD	Mating and Demating Device
MDDS	Material Directory Data Sheet
MDE	Mission Dependent Equipment
	Modular Display Electronics
MDF	Manipulator Development Facility
	Mating/Demating Facility
	Mild Detonating Fuse
MDM	Manipulator Deployment Mechanism
	Multiplexer/Demultiplexer
MDP	Maximum Design Pressure
MDR	Maintenance Demand Rate
	Minor Discrepancy Repair
	Missing Data Report
	Mission Data Reduction
	Monthly Director's Review
MDRD	Mission Data Requirements Document
MDRS	Mission Data Retrieval System

MDS	Malfunction Detection System Management Data System Master Development Schedule
MDSD	Mate/Demate Stiff Leg Derrick
MDSSC	McDonnell Douglas Space Services Company McDonnell Douglas Space Systems Corporation
MDT	Mean Detonating Time Mean Down Time Measurement Descriptor Table Mountain Daylight Time
ME	Main Engine Miscellaneous Equipment
MEA	Main Electronics Assembly Maintenance Engineering Analysis
MEAR	Manufacturing Engineering Analysis Record
MEAS	Measurement
MEB	Main Electronics Box
MEBO	Main Engine Burnout
MEC	Main Engine Controller Master Event Controller
MECA	Main Engine Controller Assembly
MECAS	Mission Equipment Configuration Accounting System
MECCA	Master Electrical Common Connector Assembly
MECF	Main Engine Computational Facilities
MECH	Mechanical
MECO	Main Engine Cutoff
MECR	Maintenance Engineering Change Request
MECSLSI	Mission Equipment Cargo Support Launch Site Installation
MED	Medium
MEDEVAC	Medical Evacuation
MEDP	Mission Equipment Data Packages
MEDS	Multifunctional Electronic Display Subsystems
MEE	Mission Essential Equipment
MEG	Megohm
MEI	Master Inspection Item
MEL	Minimum Equipment List
MELI	Master Equipment List Index
MEMS	Micro Electro-Mechanical Systems
MEOP	Maximum Expected Operating Pressure
MEP	Mean Effective Pressure
MER	Meridian Mission Evaluation Room
MERL	Materials Equipment Requirement List

MES	Main Engine Start
	Mated Elements Simulator
MESELSI	Mission Equipment Shuttle Extension Launch Site Installation
MET	Master Events Timer
	Meteorological
	Mission Elapsed Time
	Mission Evaluation Team
	Mission Events Timer
MEWG	Maintenance Engineering Working Group
MF	Mate and Ferry
	Medium Frequency
MFA	Manned Flight Awareness
MFBP	Manufacturing Flow and Build Plan
MFC	Multiple Flight Computer
	Multiple Flight Controller
MFCC	Mission Flight Control Center
MFD	Malfunction Detection
MFF	Multifunctional Facility
MFG	Major Functional Group
	Manufacturing
MFR	Manipulator Foot Restraint
	Maximum Flight Rate
	Multifunctional Review
MFT	Mean Flight Time
MFTAD	Master Flight Test Assignments Document (NSTS 07700-01-MVP-10)
MFV	Main Fuel Valve
mg	Milligram(s)
MG	Mobile Generator
mg/ft	Milligrams per Square Foot
MGA	Middle Gimbal Angle
MGBX	Mid-Deck Glovebox
MGE	Maintenance Ground Equipment
MGM	Mechanics of Granular Materials
MGMT	Management
MGR	Manager
MGSE	Mechanical Ground Support Equipment
MGT	Major Ground Test
MGVT	Mated Ground Vibration Test
MHE	Material Handling Equipment
MHF	Medium High Frequency
MHP	Manipulator Hand Controller

MHZ	Megahertz (megacycles per second)
MI	Mile
MIA	Multiplex Interface Adapter
MIB	Master Interconnect Board
MIC	Management Information Center
MICB	Mission Integration Control Board
MICIS	Material Information Control and Information System
MICS	Management Information and Control System
MIDDS	Meteorological Interactive Data Displays System
MIL	Military
MILA	Merritt Island, Florida, Launch Area
MIMOSA	Mission Modes and Space Analysis
MIMR	Management Integration Management Review
MIMS	Medical Information Management System
MIN	Minimum
	Minute
MIO	Management Integration Office
MIP	Mandatory Inspection Point
	Mission Integration Plan
	MMU Integration Plan
	Modification Instruction Package
MIR	Malfunction Investigation Report
MIS	Microcapsules in Space
	Mission Information Subsystem
MISC	Miscellaneous
MISR	Management Integration Status Review
MISS	Mission
MIT	Massachusetts Institute of Technology (The Charles Stark Draper Laboratory)
	Mishap Investigation Team
mj	Megajoules
MJ	Mechanical Joint
MKKP	(Not an acronym: Name of a file in the MARRS)
MKS	Meter Kilogram Second
ML	Low Strength ($100 \text{ mV} < E \leq \text{GV}$) Signal
	Mobile Launcher
	Mold Line
ML PED	Mobile Launcher Pedestal
MLA	Monochrome Lens Assembly
M LATCH	Latch Motion
MLB	Multilayer Board
MLC	Mobile Launcher Computer
MLE	Meoscale Lightning Experiment

MLG	Main Landing Gear
MLI	Multilayer Insulation
MLP	Mobile Launcher Platform
	Mobile Launch Platform
MLS	Microwave Landing System
mm	Millimeter
MM	Main Module
	Man-Month
	Mass Memory
MMAS	Material Management Accountability System
MMC	Martin Marietta Corporation
	Mission Management Center
MMDB	Master Measurement Data Base
MMDF	Mission Model Data File
MMES	MSFC Mated Element Systems
MMH	Maintenance Man-Hour
	Monomethylhydrazine
MML	Master Measurement List
MMLS	Model-Modes-Loads-Stresses
MMMA	Martin Marietta Michoud Aerospace
MMMSS	Martin Marietta Manned Space Systems
MMOS	Multimode Optical Sensor
MMRCT	Mass Memory Release Coordination Team
MMS	Multi-Mission Modular Spacecraft
MMSE	Multi-Use Mission Support Equipment
MMT	Mission Management Team
MMU	Manned Maneuvering Unit
	Mass Memory Unit
MN	Main
MN x	Main Power Bus x
MNCCB	MIDDS Network Configuration Control Board
MNVR	Maneuver
MO	Major Objective
	Manufacturing Order
	Month
MOA	Memorandum of Agreement
MOB	Medical Operations Branch
MOC	Mission Operations Computer
MOCF	Mission Operations Computational Facilities
MOCR	Mission Operations Control Room

MOD	Mission Operations Directorate Modification Modular Modulator
MODE	Middeck 0-gravity Dynamics Experiment
MODE-RF	Middeck 0-gravity Dynamics Experiment - Reflight
MODEM	Modulator - Demodulator
MOF	Manned Orbital Flight
MOIP	Medical Operations Implementation Plan
MOIR	Mission Operation Integration Room
MON	Monitor
MOP	Maximum Operating Pressure
MOPR	Mission Operations Planning Room
MOR	Manufacturing Operation Record
MORD	Medical Operations Requirements Document Mission Options Requirements Document
MOS	Metal Oxide Semiconductor
MOSIP	Medical Operations Support Implementation Plan
MOT	Motor
MOU	Memorandum of Understanding
MOV	Main Oxidizer Valve
MP	Management Package Medium Pressure
MPAD	Mission Planning and Analysis Division (JSC)
MPB	Maintenance Parts Breakdown
MPC	Manual Pointing Controller
MPCA	Mid-body Power Controller Assembly
MPE	Mission Peculiar Equipment
MPEC	Multi Purpose Experiment Canister
MPRESS	Mission-Peculiar Equipment Support Structure
MPG	Multipoint Grounding
MPHE	Material and Personnel Handling Equipment
MPL	Maintenance Parts List Minimum Power Level
MPLM	Mini-pressurized Logistics Module
mpm	Meters per Minute
MPM	Manipulator Positioning Mechanism
MPNE	Microgravity Plant Nutrient Experiment
MPP	Material Processing Procedure
MPR	Maintainability Problem Report Mockup Purchase Request

MPS	Main Propulsion Subsystem Main Propulsion System Master Program Schedule Material Processing Specification
MPSR	Mission Profile Storage and Retrieval Multipurpose Support Room
MPT	Main Propulsion Test
MPTA	Main Propulsion Test Article
MPTF	Main Propulsion Test Facility
MPVA	Main Propellant Valve Actuator
MR	Material Report Material Review Mixture Ratio
mrad	Milliradian
MRB	Material Review Board
MRC	Measurement Requirements Committee
MRCS	Mission Requirements Control System
MRD	Material Review Disposition Mission Requirements Document
MRDB	Measurement/Stimuli Related Data Base
MRDR	Material Review Disposition Record
MRIR	Medium Resolution Infrared Radiometer
MRL	Manipulator Retention Latches Material Requirements List
MRRRA	Monthly Revised Reference Range Atmosphere
MRS	Module Retention System
MRT	Mishap Response Teleconference
MRU	Mixture Ratio Unit
ms	Millisecond
MS	Machine Screw Mass Spectrometer Material Specification Microsoft Milestone Military Standard (Parts Designation) Mission Specialist Mission Station
MSA	Management Safety Assessment Material Service Area Minimum Surface Area
MSAD	Master Switch Materials Summary Acceptance Document

MSB	Most Significant Bit
MSBLS	Microwave Scanning Beam Landing Station
MSBLS-GS	MSBLS-Ground Station
MSBLS-JR	Microwave Scanning Beam Landing System - Junior
MSC	Manned Spacecraft Center (changed to JSC)
	Master Sequence Controller
	Materials Service Center
MSCR	Measurement/Stimuli Change Request
MSDP	Mission Station Distribution Panel
MSE	Maintenance Support Equipment
	Mechanical Support Equipment
	Mission Staff Engineer
MSF	Manned Space Flight
MSFC	George C. Marshall Space Flight Center
MSFN	Manned Space Flight Network
MSG	Message
MSI	Maintenance Significant Items
MSID	Measurement Stimulation Identification
	Measurement/Stimulus Identification
	Measurement/Stimulus Identifier
MSIS	Man/Systems Integration Standards
MSL	Materials Science Laboratory
	Mean Sea Level
	Microgravity Science Laboratory
MSLD	Mass Spectrometer Leak Detector
MSO	Model for Spares Optimization
MSOB	Manned Spacecraft Operations Building (KSC)
MSOIN	Minor Subcontractor or IDWA Notification
MSR	Mission Support Room
MSS	Mission Specialist Station
	Mobile Service Structure
	Multispectral Scanner System
MST	Mobile Service Tower
	Module Servicing Tool
	Mountain Standard Time
MSU	Mass Storage Unit
MSV	Monitored Sine Vibration (Test)
MSW	Microswitch
MSX	Midcourse Space Experiments
MT	Magnetic Tape
	Master Timer
	Master Tool
	Maximum Torque
	Mission Trajectory
	Mount

MTA	Major Test Article
	Mass Thermal Analysis
MTBF	Mean Time Between Failures
MTBM	Mean Time Between Maintenance
MTBMA	Mean Time Between Maintenance Action
MTC	Man-tended Capability
	Master Thrust Control
MTCU	Magnetic Tape Control Unit
MTD	Mounted
MTE	Multi-System Test Equipment
MTF	Mississippi Test Facility (Superseded by NSTL)
MTG	Mounting
MTK	Mechanized Time Keeping
MTL	Material
MTM	Methods Time Measurement
MTO	Modification Task Outline
MTP	Manufacturing Technical Procedure
	Master Test Plan
	Mission Test Plan
MTTA	Mean Time to Accomplish
MTTF	Mean Time to Failure
MTTFF	Mean Time to First Failure
MTTR	Mean Time to Repair
MTU	Magnetic Tape Unit
	Master Timing Unit
	Mobile Training Unit
MTU I/F	Master Timing Unit Interface
MU	Master Unit
	Mobile Unit
MUA	Material Usage Agreement
MUF	Maximum Usable Frequency
M Unlatch	Unlatch Motion
MULT	Multiple
MUSA	Mission Unique Safety Assessment
MUX	Multiplexer
MV	Manufacturing Verification
	Millivolt
MVA	Megavolt Ampere
MVC	Manual Volume Control
	Master Volume Control
MVGVT	Mated Vertical Ground Vibration Test
MVP	Master Verification Plan
MVS	Multiple Virtual Storage

MW	Microwave
	Milliwatt
MWB	Master Work Book
MWLL	Middleweight Longeron Latch
MWP	Maximum Working Pressure
MWR	Mean Width Ratio
MWS	Mini Workstation
MX	Multiplex
MY	Man Year

N	Newton(s)
N.m	Newton.meter(s)
N-sec	Newton-second(s)
N/A	Next Assembly
	Not Applicable
N/B	Narrow Band
N/C	Normally Closed
N/m ²	Newton per Square Meter
N/O	Normally Open
N/W	Network
N ₂	Nitrogen
N ₂ H ₄	Hydrazine
N ₂ O ₄	Nitrogen Tetroxide
NAAL	North American Aerodynamic Laboratory (Wind Tunnel)
NaCl	Sodium Chloride
NAD	North American Datum
NAFD	Not Accepted for Data
NAP	Navigation Analysis Program
NAR	Numerical Analysis Research
NAS	National Academy of Sciences
	National Aircraft Standards
	Naval Air Station
NASA	National Aeronautics and Space Administration
NASBE	Sodium Sulfur Battery Experiment
NASCO	NASA Communications Network
NASDA	National Space Development Agency Japan
NASTRAN	NASA Structural Analysis
NATF	Naval Air Test Facility
NATL	National
NAV	Navigation
NAVDAD	Navigationally Derived Air Data
NAVID	Navigational Aid
NAVSAT	Navigation Satellite
NB	Navigation Base
	No Bias (relay)
NBS	National Bureau of Standards
NBT	Neutral Buoyancy Trainer
NC	No Change
	Noise Criteria
	Numerical Control
NCC	NASA Class Code
NCGS	Nuclear Criteria Group Secretary

ND	NASA Document Non-Dimensional
NDE	Non-Destructive Evaluation
NDI	Non-Destructive Inspection
NDT	Non-Destructive Test
NE	Northeast
NEC	National Electrical Code
NEG	Negative
NEOM	Nominal End of Mission
NET	Network
NETCOM	Network Communications
NEQA	NASA Engineering Quality Audit
NEUROLAB	Neurological Laboratory
NFPA	National Fire Protection Association
NGM	NASA Ground Manager (at WSSH)
NGT	Network Ground Terminal
NHA	Next Higher Assembly
NH ₃	Ammonia
NH ₄	Hydrazine
NI	Nickel
NI-SIL	Nickel-Silver
NIB	Non-Interference Basis
NIDS	Network Interface Data System
NIH-C	National Institutes of Health - Cells
NIH-R	National Institutes of Health - Rodents
NIP	Network Interface Processor Nipple
NL	No Limit
NLG	Nose Landing Gear
NM	Nautical Miles Nonmetallic
NMAB	National Materials Advisory Board
NMI	NASA Management Instruction
NMO	Normal Manual Operation
NO	Number
NOAA	National Oceanic and Atmospheric Administration
NOC	Network Operation Control
NODE 2	Node 2 (SSF/MB-05)
NOM	Network Output Multiplexer
NOR	Normal Northrup
NORAD	North American Air Defense Command

NORM	Normal
NOZ	Nozzle
NP	Not Provided
NPBCSE	Neutral Particle Beam Cesium Space Experiment
NPC	NASA Publication Control
	Non-Propulsive Consumables
NPD	NASA Policy Directive
NPL	Nominal Power Level
	Normal Power Level (Now RPL)
NPS	NASA Planning Studies
NPSH	Net Positive Suction Head
NPSP	Net Positive Static Pressure
	Net Positive Suction Pressure
NPV	Nitrogen Pressure Valve
NR	Noise Rating
	Not Required
	Number
NRC	Non-Recurring Costs
NRCC	National Research Council of Canada
NRM	Non-Recurring Maintenance
NRP	Normal Rated Power
NRS	Nonconformance Reporting System
NRT	Near Realtime
	Near Realtime Telemetry
NRTS	Not Repairable at This Station
NRZ	Non-Return-to-Zero
NRZ-L	Non-Return-to-Zero-Level
NRZ-M	Non-Return-to-Zero Mark
NRZ-S	Non-Return-to-Zero Space
NS	Naval Station
NSF	Naval Support Facility
NSI-I	NASA Standard Initiator, Type I (was SMSI)
NSLD	NASA Shuttle Logistics Depot
NSN	National Stock Number
NSO	NASA Support Operation
NSP	NASA Support Plan
	Network Signal Processor
NSTL	National Space Technology Laboratories (Superseded by SSC)
NSTS	National Space Transportation System (Redesignated as Space Shuttle Program)
NSTSGSE	National Space Transportation System Ground Support Equipment
NSTSM	National Space Transportation System Manager
NSTSO	National Space Transportation System Office

NSTSRO	National Space Transportation System Resident Office
NSTSS	National Space Transportation System Schedule
NTO	Nitrogen Tetroxide
NTP	Network Test Panel
	Normal Temperature and Pressure
	Notice to Proceed
NTS	Not to Scale
NTSB	National Transportation Safety Board
NUL	Non-GSE Utilization List
NVR	Nonvolatile Residue
	No Verification Required
	No Voltage Release
NW	NASA Waiver
NWS	National Weather Service
	Nose-Wheel Steering
NWT	Nonwatertight

O&C	Operation and Checkout Operations and Checkout (Building)
O&FS	Operations and Flight Support
O&M	Operation and Maintenance
O&R	Overhaul and Repair
O&SHA	Operating and Support Hazard Analysis
O/D	On Dock
O/ET	Orbiter/External Tank
O/F	Oxidizer-to-Fuel Ratio
O/L-RC	Overload/Reverse Current
O/R	Outside Radius Oxygen Relief
O/S	Operation System Software
O/V	Overvoltage
O ₂	Oxygen
OA	Operational Aft Orbital Assembly Output Axis Overall
OAA	Orbiter Access Arm
OACT	Office of Advanced Concepts and Technology
OAD	Operational/Adaptation Data
OARE	Orbital Acceleration Research Experiment
OAS	Orbiter Aeroflight Simulator Orbiter Avionics Simulator Orbiter Avionics System
OASCB	Orbiter Avionics Software Control Board
OASPL	Overall Sound Pressure Level
OAST	Office of Aeronautics and Space Technology
OAST-FLYER	Office of Aeronautics and Space Technology - FLYER
OAT	Overall Test
OB	On Board Operational Base
OBAS	Orbiter Body Axis System
OBCO	On Board Checkout (Instrumentation)
OBCS	On Board Checkout Subsystem
OBMR	Overboard Mixture Ratio
OBS	Observation
OBV	Oxygen Bleed Valve
OC	On-Condition On Center Open Circuit Overcurrent

OCAR	Orbiter Critical Design Review
OCAS	Operator Commanded Auto Sequence
OCC	Office of Contract Compliance
	Operations Control Center
OCDV	Optics Coupling Data Unit (G&N)
OCF	Onboard Computational Facility
	Orbiter Computational Facilities
OCM	On Condition Maintenance
OCN	Order Control Number
OCO	Open-Close-Open
OCP	Output Control Pulse
OCR	Optical Character Recognition
OCS	On Board Checkout System
	Orbiter Coordinate System
OCTF	One Cycle to Flight
OCTW	Optical Communications thru the Shuttle Window
OD	Operational Downlink
	Operations Directive
	Outside Diameter
ODA	Orbiter Disconnect Assembly
ODB	Operational Data Book
ODC	Other Direct Costs
ODERACS	Orbital Debris Radar Calibration Spheres Project
ODERACS-1R	Orbital Debris Radar Calibration Spheres Project - Reflight
ODIN	Orbital Design Integration System
ODM	Orbiter Deployment Mechanism
	Orbiter Drive Mechanism
ODRAN	Operational Drawing Revision Advance Notice
ODS	Orbiter Docking System
ODU	Output Display Unit
OEAS	Orbital Emergency Arresting System
OEM	Original Equipment Manufacturer
OESS	Orbiter/ET Separation Subsystem
OEX	Orbiter Experiment
OF	Orbital Flight
	Outside Face
	Oxygen Fill
OFCC	Office of Federal Contract Compliance
OFDS	Orbiter Flight Dynamics Simulator
	Oxygen Fluid Distribution System
OFI	Operational Flight Instrumentation
OFK	Official Flight Kit
OFM	Original Equipment Manufacturer
OFF	Operational Flight Profile
	Operational Flight Program

OFS	Orbiter Flight System Orbiter Functional Simulator
OFT	Orbital Flight Test (formerly VFT)
OFTDS	Orbital Flight Test Data System
OFTR	Orbital Flight Test Requirement
OG	Outer Gimbal (Roll) Oxygen Gage
OGA	Outer Gimbal Angle
OGE	Operating Ground Equipment
OGS	Outer Glide Slope
OGV	Oxygen Gage Valve
OH	Overhaul Overhead
OHF	Occupational Health Facility
OHGVT	Orbiter Horizontal Ground Vibration Test
OI	Operational Increment Operational Instrumentation Orbiter Instrumentation
OIA	Office of International Affairs Orbiter Interface Adapter
OIC	Orbiter Integrated Checkout
OIR	Operations Integration Review
OIS	Operational Intercommunication System
OISR	Open Item Status Report
OIT	Orbiter Integrated Test
OIVS	Orbiter Interface Verification Set
OJT	On-the-Job Training
OL	Open Loop
OLDB	On-Line Data Bank
OLF	Orbiter Landing Facility
OLIF	Orbiter Landing Instrumentation Facilities
LOW	Orbiter Lift-off Weight
OLSA	Orbiter/LPS Signal Adapter
OLSP	Orbiter Logistics Support Plan
OMA	Operations Maintenance Area
OMB	Office of Management and Budget
OMBUU	Orbiter Mid-body Umbilical Unit
OMCF	Operations and Maintenance Control File Orbiter Maintenance and Checkout Facility
OMD	Operations and Maintenance Documentation
OMDP	Orbiter Maintenance Down Period
OMDR	Operations and Maintenance Data Record

OME	Orbital Maneuvering Engine Orbiter Main Engine
OMEWG	Orbiter Maintenance Engineering Working Group
OMI	Operational Maintenance Instruction Operations and Maintenance Instruction Orbiter Maintenance Instruction
OMIN	Online Management Information Network
OML	Orbiter Mold Line Outer Mold Line Outside Mold Line
OMMH	Orbiter Maintenance Man-Hours
OMNI	Omnidirectional Omni-Range
OMP	Operations and Maintenance Plan
OMPR	Operational Maintainability Problem Reporting
OMR	Operations Maintenance Room Operations and Maintenance Requirements Orbiter Management Review
OMRB	Operating Material Review Board
OMRP	Operations and Maintenance Requirements Plan
OMRS	Operations and Maintenance Requirements and Specifications
OMRSD	Operations and Maintenance Requirements and Specifications Document
OMRSWG	OMRS Working Group
OMS	Orbital Maneuvering Subsystem
OMSF	Office of Manned Space Flight (Now Office of Space Flight)
OMSP	Operational Support Maintenance Plan
OMU	Optical Measuring Unit
OMV	Oxygen Manual Valve
OND	Operator Need Date
ONR	Office of Naval Research
OOD	Orbiter On-Dock
OOS	On-Orbit Station Orbit-to-Orbit Shuttle
OOSDP	On-Orbit Station Distribution Panel
OP	Operational Oxygen Purge
OPB	Oxidizer Preburner
OPE	Other Project Element
OPER	Operate Operational Operator

OPF	Orbiter Processing Facility
OPGUID	Optimum Guidance Technique
OPIS	Orbiter Prime Item Specification
OPL	Open Problem List
	Operational
OPNS	Operations
OPO	Orbiter Project Office
OPOV	Oxidizer Preburner Oxidizer Valve
OPPAR	Orbiter Project Parts Authorization Request
OPPL	Orbiter Project Parts List
OPR	Office of Primary Responsibility
	Operations Planning Review
	Orbiter Payload Recorder
OPS	Operational Sequence
	Operations
	Operations Sequence
	Orbiter Project Schedules
OPT	Optics
	Optimum
OR	Operations Review
ORAS	Orbiter Rotational Axis System
ORB	Orbiter
	Orbiter Review Board
ORD	Operational Readiness Date
	Operational Ready Data
	Ordnance
ORF	Orifice
ORFEUS-SPAS	Orbiting Retrievable Far and Extreme Ultraviolet Spectrometer - SPAS
ORI	Operational Readiness Inspection
ORLA	Optimum Repair Level Analysis
ORP	ORS Retransmission Processor
ORR	Operational Readiness Review
	Orroval Valley, Australia (STDN)
ORS	Orbital Refueling System
ORU	Operational Replacement Unit
	Orbital Replacement Unit
OS	Operating Software
	Operating System
	Optics Subsystem
	Optional Service
	Orbiter CEI Specification
OSB	Outside the Board

OSC	On Scene Commander Oscillator
OSDH	Orbiter System Definition Handbook
OSE	Operating Support Equipment
OSF	Office of Space Flight Open System Facility Ordnance Storage Facility
OSHA	Occupational Safety and Health Act
OSM	Orbital Service Module
OSMP	Operational Support Maintenance Plan
OSO	Ocean Systems Operation
OSOP	Orbiter Systems Operating Procedures
OSR	Operations Support Room
OSRS	Orbiter Structural Reference System
OSS	Office of Space Sciences Optics Subsystem
OSSA	Office of Space Sciences and Applications
OSSRH	Orbiter Subsystem Requirements Handbook
OST	Operations Support Team Orbiter Support Trolley
OSTP	Orbiting System Test Plan
OT	Operating Time Operational Trajectory Overtime
OTC	Orbiter Test Conductor
OTD	Operational Technical Documentation
OTDA	Office of Tracking and Data Acquisition
OTF	Ocean Test Fixture
OTH	Over-the-Horizon (Radar)
OTL	Ordnance Test Laboratory
OTO	One-Time-Only
OTOS	Orbit-to-Orbit Stage
OTP	Operations Turnaround Plan
OTR	Operating Time Record Outer
OTS	Off-the-Shelf
OTV	Operational Television
OUP	OFS Uplink Processor
OUT	Outlet Output Outside
OUTBD	Outboard

OV	On Velocity Vector
	Orbiter Vehicle
	Oxygen Vent
OVBD	Overboard
OVF	Overfill
OVHD	Overhead
OVHT	Overheat
OVI	Operational Validation Inspection
OVLD	Overload
OVRD	Override
OVS	Operational Voice System
OWD	One-Way Doppler
OWDE	One-Way Doppler Extractor
OWF	Optimum Working Frequency
OXD	Oxide
	Oxidizer
OXY	Oxygen
OZ	Ounce

THIS PAGE INTENTIONALLY LEFT BLANK

(P,Y,R)	Pitch, Yaw, Roll
P	Pallet (Spacelab)
	Period
	Pitch
	Pole
	Pressure
	Primary
P _c	Main Engine Main Combustion Chamber Pressure
P&I	Performance and Interface (Specifications)
P&R	Performance and Resources
P&SM	Procurement and Subcontract Management
P-P	Peak-to-Peak
P/A	Problem Analysis
P/B	Preburner
	Push Button
P/C	Pitch Control
P/L	Parts List
	Payload
	Post Landing
	Purchased Labor
P/P	patch panel
	Printer/Plotter
P1	Segment Port 1 (SSF/MB-08)
P2	Segment Port 2 (SSF/MB-09)
P3/4	Segment Port 3/Port 4 (SSF/MB-10)
PA	Pad Abort
	Power Amplifier
	Principle Axes
	Pulse Amplifier
PAC	Problem Action Center
	Problem Assessment Center
PACC	Problem Action Control Center
PACK	Payload Active Cooling Kit
PAD	Program Approval Document
	Propellant Acquisition Device
PAE	Preventive Action Engineer
	Problem Assessment Engineering
PAF	Peak Annual Funding
PAFB	Patrick Air Force Base
PAH	Payload Accommodation Handbook
PALS	Photo Area and Location System
	Precision Approach Landing System

PAM	Payload Assist Module Pulse Amplitude Modulation
PAM-D	Payload Assist Module-Delta Class
PAO	Public Affairs Office
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar Problem Accountability Record Problem Action Record Problem Action Report Problem Action Request Product Acceptance Review
PARA	Paragraph
PARE	Physiological & Anatomical Rodent Experiment
PARE/NIH-R	Physiological & Anatomical Rodent Experiment - National Institutes of Health
PARS	Property Accountability Record System
PART	Particle
PAS	Payload Axis System Payload Z
PASS	Planning and Scheduling System Primary Avionics Software System
PAT	Payload Accommodation Terminal Power Accommodation Terminal Problem Action Team
PATS	Program for Analysis of Time Series
PAV	Pressure Actuated Valve
PB	Phonetically Balanced Playback
PBAN	Polybutadiene Acrylonitrile
PBD	Payload Bay Door
PBDM	Payload Bay Door Mechanism
PBI	Push Button Indicator
PBIC	Programmable Buffer Interface Card
PBK	Payload Bay Kit
PBM	Program Business Management
PBPS	Post-Boost Propulsion Systems
PBW	Proportional Band Width
PC	Pulsating Current Chamber Pressure
PCA	Pneumatic Control Assembly Point of Closest Approach Power Control Assembly
PCASS	Program Compliance Assurance and Status System

PCB	Power Circuit Breaker Power Control Box Printed Circuit Board
PCC	Pad Control Center
PCCB	Program Configuration Control Board
PCCM	Program Change Control Management
PCCP	Preliminary Contract Change Proposal
PCG	Protein Crystal Growth
PCG-EGN2	Protein Crystal Growth-Enhanced Dewar Program
PCG-STES	Protein Crystal Growth Single Locker Thermal Enclosure System
PCG-TES	Protein Crystal Growth - Thermal Enclosure System
PCI	Program Control Input
PCIL	Pilot-Controlled Instrument Landing
PCIN	Program Change Identification Number
PCL	Primary Coolant Loop
PCM	Power Control Mission Pulse Code Modulation
PCMMU	Pulse Code Modulation Master Unit
PCN	Page Change Notice Program Control Number
PCO	Post-Checkout Operations Procuring Contracting Officer Program Controlled Output
PCP	Project Change Proposal
PCR	Payload Changeout Room Power Change Request Publication Change Request
PCS	Permanent Change of Station Power Conversion System
PCTE	Portable Commercial Test Equipment
PCU	Pressure Control Unit Process Control Unit
PCV	Pre-Check Verification Purge Control Valve
PCVL	Pilot Controlled Visual Landing
PD	Preliminary Design Procurement Drawing Program Directive
PD&RS	Payload Development and Retrieval Subsystem
PDA	Payload Disconnect Assembly
PDAR	Program Description and Requirements
PDB	Performance Data Book Power Distribution Box

PDC	Program Documentation Center
PDCS	Power Distribution and Control Subsystem
PDI	Payload Data Interleaver
PDL	Program Design Language
PDM	Processor Data Monitor
	Pulse Duration Modulation
PDMR	Program Directors Management Review
PDP	Plasma Diagnostics Package
	Preliminary Definition Plan
	Procurement Data Package
	Product Development Plan
	Program Development Plan
	Project Definition Phase
PDR	Preliminary Data Requirements
	Preliminary Design Review
	Processed Data Recorder
PDRD	Procurement Data Requirements Document
PDRL	Procurement Data Requirements List
PDRM	Payload Deployment and Retrieval Mechanism
PDRS	Payload Deployment and Retrieval Systems
PDR/SPA	Processed Data Recorder/Shared Peripheral Area
PDS	Power Distribution Subsystem
	Problem Data System
PDTR	Pre-Delivery Transfer Reviews
PDU	Power Drive Unit
	Pressure Distribution Unit
	Primary Drive Unit
	Pulse Detection Unit
PE	Project Engineer
PEG	Powered Explicit Guidance Program
PEIR	Project Equipment Inspection Record
PEM	Plant Engineering and Maintenance
PEP	Power Extension Package
PER	Preliminary Engineering Report
PERF	Performance
PERT	Program Evaluation Review Technique
PETA	Performance Evaluation and Trend Analysis
PF	Parachute Facility
	Payload Forward
	Power Factor
	Powered Flight
	Preflight
	Prime Function
	Probability of Failure
	Pulse Frequency

PFA	Palmdale Final Assembly
PFB	Payload Feedback
	Pressure Fed Booster
PFC	Preliminary Flight Certification
PFCS	Primary FCS
PFL	Primary Freon Loop
PFM	Pulse Frequency Modulation
PFnn	Payload Forward MDM nn
PFP	Program Financial Plan
	Programmable Function Panel
PFR	Portable Foot Restraint
PFRT	Preliminary Flight Rating Test
PFTA	Payload Flight Test Article
PG	Pressure Gage
PGA	Power Generating Assembly
	Pressure Garment Assembly
PGCP	Particles and Gases Contamination Panel
PGE	Purge
PGHM	Payload Ground Handling Mechanism
PGIM	Plant Growth Investigations in Microgravity
PGORS	Payload Ground Operations Requirements Study
PGS	Power Generation Subsystem
PGSC	Payload General Support Computer
PH	Phase
	Preliminary Hazard Analysis
PHCF	Pituitary Growth Hormone Cell Function
PHF	Personal Hygiene Facility
PI	Payload Interrogator
	Principle Investigator
	Procurement Item
PIA	Pre-Installation Acceptance
PIAS	Payload Interface Axis System
PIB	Pyrotechnic Installation Building
PIC	Pre-Installation Checkout
	Pyro Initiator Controller
PIC-01	Plume Impingement & Contamination Experiment (DTO 826)
PICP	Program Interface Control Plan
PICRS	Program Information Coordination and Review Service
PICS	Photo Index and Cataloging System
PIDA	Payload Installation and Deployment Aid
PIECP	Preliminary Impact Engineering Change Proposal
PIM	Payload Integration Manager
	Pulse Interval Modulation

PIND	Particle Impact Noise Detection
PIO	Pilot-Induced Oscillation
PIP	Payload Integration Plan
	Payload Interface Plan
PIREPS	Pilot Reports
PIRN	Preliminary Interface Revision Notice
PIT	Pre-Installation Test
PJ	Pararescue Jumper
PK	Peak
PKG	Package
PKM	Perigee Kick Motor
PL	Payload
	Prelaunch
	Power Level
PLACE	Position Location Aircraft Communications Equipment
PLATF	Platform
PLB	Payload Bay
PLBD	Payload Bay Doors
PLBK	Playback
PLD	Program Listing Document
PLH	Payload Handling
PLM	Payload Management
PLMS	Program Logistics Master Schedule
PLn	Payload Data Bus n
PLN	Program Logic Network
PLOP	Payload Operating System
PLS	Post Landing and Safing
	Primary Landing Site
PLSP	Payload Signal Processor
PLSS	Portable Life Support Subsystem
	Primary Life Support Subsystem
PLT	Pilot
PLTS	Precision Laser Tracking System
PLUM	Polymerization with Light Under Microgravity
PM	Performance Monitor
	Phase Modulated
	Program Milestone
	Pulse Modulation
PMA	Pressurized Mating Adapter (SSF/MB-05)
	Pressurized Mating Adapter (SSF/MB-07)
PMBT	Propellant Main Bulk Temperature
	Propellant Mean Bulk Temperature

PMDL	Palmdale
PMF	Performance Monitor Function
PMHL	Preferred Measurement Hardware List
PMI	Preventive Maintenance Inspection
PMIR	Program Manager's Integration Review
PMIS	Personnel Management Information System
PMM	Property Management Manual
PMN	Program Management Network
PMOD	Propulsion Module (SSF/MB-02)
	Propulsion Module (SSF/MB-09)
PMOM	Performance Management Operating Manual
PMON	Performance Management Operations Network
PMP	Payload Mounting Panel
	Performance Management Packages
	Program Management Plan
	Project Management Plan
PMR	Program Manager's Review
PMRB	Program Material Review Board
PMS	Performance Management System
	Performance Monitoring System
	Permanent Measurement System
PMT	Production Monitoring Test
PMU	Pressure Measuring Unit
Pn	Cable Connector n
PN	Part Number
PNEU	Pneumatic
PNL	Panel
PNP	Prenegotiation Position
PO	Purchase Order
POA	Plan of Action
POC	Point of Contact
	Portable Onboard Computer
	Purchase Order Closeout
POCC	Payload Operations Control Center
POCCB	Portable Onboard Computing Control Board
POCN	Purchase Order Change Notice
POG	Payload OMRS Working Group
POLAR	Production Order Location and Reporting
POMT	Planning Operations Management Team
POP	Perpendicular to Orbit Plane
	Prelaunch Operations Plan
	Program Operating Plan
POR	Point of Resolution
PORB	Production Operations Review Board
PORD	Performance and Operations Requirements Document

PORR	Preliminary Operations Requirements Review
PORT	Portable
POS	Pacific Ocean Ship
	Portable Oxygen System
	Position
	Probability of Sufficiency
POSA	Passive Optical Sample Array
POST	Positive
	Program to Optimize Simulated Trajectories
POT	Potentiometer
POV	Peak Operating Voltage
	Pneumatic Operated Valve
POWG	Payload Operations Working Group
PP	Partial Pressure
	Peak-to-Peak
	Planning Package
	Push-Pull
PPA	Power-Pitch-Around
PPB	Parts per Billion
	Program Performance Baseline
PPF	Payload Processing Facility
PPIL	Priced Provisioned Item List
PPIR	Preliminary Product IV&V Report
PPL	Priced Parts List
	Provisioning Parts List
PPM	Parts per Million
	Payload Project Manager
	Pulse Position Modulation
	Pulses per Minute
PPR	Payload Preparation Room
PPS	Pneumatic Power Subsystem
	Pulses per Second
PR	Performance Report
	Pressure Regulator
	Problem Report
	Procurement Regulations
	Purchase Request
PRA	Probabilistic Risk Assessment
PRACA	Problem Reporting and Corrective Action
PRB	Parachute Refurbishment Building
	Problem Review Board
PRCA	Problem Reporting and Corrective Action

PRCB	Program Requirements Control Board
PRCBD	Program Requirements Control Board Directive
PRCS	Primary Reaction Control System
PRD	Payload Requirements Document
	Payload Retention Device
	Procurement Regulation Directive
	Procurement Requirements Document
	Program Requirements Document
PRE	Personal Rescue Enclosure
PRELIM	Preliminary
PRESS	Pressure
PRF	Pulse Repetition Frequency
PRI	Primary
PRL	Page Revision Log
PRLA	Payload Retention Latch Actuator Assembly
PRM	Payload Retention Mechanism
	Performance Reference Mission
PRN	Program Release Notice
	Pseudo-Random Noise
PROC	Procedure
	Processor
	Procurement
PROCU	Processor Unit
PROG	Program
PROJ	Project
PROM	Programmable Read Only Memory
PROP	Propellant
	Propulsion
PROX	Proximity
PRPS	Programming Requirements Process Specification
PRR	Parts Replacement Request
	Payload Readiness Review
	Preliminary Requirements Review
	Program Requirements Review
	Pulse Repetition Rate
PRS	Payload Retention Subsystem
	Personnel Rescue Service
	Power Reactant Subsystem
	Primary Rescue Site
	Provisioning Requirements Statement
PRSD	Power Reactant Storage and Distribution
	Power Reactant Storage and Distribution Panel
	Power Reactant Storage Device

PS	Parachute Subsystem
	Payload Specialist
	Payload Station
	Payload Support
	Power Supply
	Pressure Switch
PS/FC	Power Supply/Fuel Cell
PSA	Passive Sample Array
	Power Servo Amplifier
	Power Servo Assembly
	Pressure Switch Assembly
	Provisions Stowage Assembly
PSAC	Presidential Scientific Advisory Committee
PSC	Payload Shipping Container
PSCN	Preliminary Specification Change Notice
PSD	Power Spectral Density
PSDP	Payload Station Distribution Panel
PSDR	Planning and Scheduling Document Record
PSE	Peculiar Support Equipment
	Physiological Systems Experiment
psf	Pounds per Square Foot
PSF	Processing and Staging Facility
PSI	Pounds per Square Inch
PSIA	Pounds per Square Inch Absolute
PSID	Pounds per Square Inch Differential
PSIG	Pounds per Square Inch Gage
	Propulsion Systems Integration Group
PSIS	Pounds per Square Inch Sealed
PSK	Phase Shift Keyed
PSM	Product Support Manager/Management
PSP	Payload Signal Processor
	Process Support Plan
	Program Support Plan
	Project Schedule Plan
PSPL	Priced Spare Parts List
PSR	Program Status Review
PSRD	Program Support Requirements Document
PSS	Payload Specialist Station
	Propellant Supply Subsystem
PSTF	Payload Spin Test Facility
PT	Point
	Pressure Transducer

PTA	Post-Test Analysis Press to ATO Propulsion Test Article
PTB	Payload Timing Buffer
PTC	Passive Thermal Control Portable Temperature Controller
PTCR	Pad Terminal Connection Room
PTCS	Passive Thermal Control System Propellant Tanking Computer System
PTD	Provisioning Technical Documentation
PTI	Programmed Test Input
PTM	Press to MECO Pulse Time Modulation
PTMU	Parts Mission Unique
PTR	Performance Test Review Printer
PTRS	Project Technical Requirements Specification
PTT	Push-To-Talk
PTU	Pan-Tilt Unit (for camera)
PU	Pickup Power Unit Propellant Utilization
PUB	Publication
PUGS	Propellant Utilization and Gauging System
PUV	Propellant Utilization Valve
PV&D	Purge, Vent and Drain
PVA	Preburner Valve Actuator Propellant Valve Actuator
PVR	Precision Voltage Reference
PVT	Preflight Verification Test Pressure/Volume/Temperature
PVWA	Planned Value of Work Accomplished
PVWS	Planned Value of Work Scheduled
PW	Pulse Width
PWA	Product Work Authorization
PWB	Printed Wire Board
PWBS	Program Work Breakdown Structure
PWM	Pulse-Width Modulation
PWMD	Printed Wiring Master Drawing
PWP	PDRS Working Group
PWR	Power
PWS	Peak Wind Speed
PYRO	Pyrotechnics

THIS PAGE INTENTIONALLY LEFT BLANK

Q	Dynamic Pressure
Q ALPHA	Pitch Dynamic Pressure
Q BETA	Yaw Dynamic Pressure
QA	Quality Assurance
QACAD	Quality Assurance Corrective Action Document
QAED	Quality Assurance and Engineering Division
QALPHA	Product of QBAR and ALPHA
QAM	Quality Assurance Manual
QAP	Quality Assurance Procedure
QAVT	Qualification Acceptance Vibration Test
QBAR	Dynamic Pressure
QBETA	Product of QBAR and BETA
QC	Quality Control
QCDR	Quality Control Deficiency Report
QD	Quick Disconnect
QDS	Quality Data System
QE	Quality Engineer
QEC	Quick Engine Change
QGS	Quantity Gauging System
QL	Quick Look
QLDS	Quick Look Data Station
QLS	Quick Look Station
QM	Qualification Motor
	Quality Monitor
QMF	Query Management Function
QPL	Qualified Parts List
	Qualified Products List
QPRD	Quality Planning Requirements Document
QPS	Quality Planning Specification
QPSK	Quadrature Phase Shift Keyed
QRE	Quick Reaction Estimate
QRI	Quick Reaction Integration
QSA	Qualification Site Approval
QSGVT	Quarter Scale Ground Vibration Test
QSL	Qualified Source List
QSM	Quarter Scale Model
QSMVT	Quarter Scale Model Vibration Testing
QT	Qualification Test
QTP	Qualification Test Plan
QTR	Qualification Test Report
QTY	Quantity
QUAD	Quadrangle
	Quadrant

QUADS	Quality Achievement Data System
QUAL	Qualification
	Qualified
	Quality
QUI	Quito, Ecuador (STDN)
QUIC	Quality Data Information and Control
QVT	Qualified Verification Testing
QVVT	Qualified Verification Vibration Testing

(R,P,Y)	Roll, Pitch, Yaw
R	Range
	Rankine
	Ratio
	Receive
	Reliability
	Replace
	Right
	Roentgen
R&D	Research and Development
R&P	Reserve and Process
R&PM	Research and Program Management
R&QA	Reliability and Quality Assurance
R&R	Remove and Replace
R-T	Resistance Test
R/A	Radar Altimeter
R/I	Receiving Inspection
R/L	Remote/Local
R/S	Redundant Set
R/T	Real Time
	Receiver/Transmitter
R/W	Runway
RI/D	Rockwell International, Space Systems Division/Downey
RA	Radar Altimeter
RAAN	Right Ascension of Ascending Node
RACS	Remote Automatic Calibration System
RAD	Radar
	Radian
	Radius
RADAR	Radio Detection and Ranging
RAF	Requirements Analysis Form
RAI	Roll Attitude Indicator
RALT	Radar Altimeter
RAM	Random Access Memory
	Responsibility Assignment Matrix
RAMA	Recap and Movement Authorization
RAOB	Radiosonde Observation
RAPCON	Radar Approach and Control
RAS	Requirements Accounting System
	Requirements Allocation Sheet
RASS	Release Authorization for Shuttle Software
	Requirement Accounting and Status System

RATCC	Radar Air Traffic Control Center
RAU	Remote Acquisition Unit
RAX	Remote Access Computing System
	Remote Access Terminal
RBAR	Negative Position Vector (Beneath)
RBN	Radio Beacon
RC	Range Command
	Resistance-Capacitance
	Rotation Control
RCC	Range Control Center
	Reinforced Carbon-Carbon
RCCB	Remote Control Circuit Breaker
RCD	Record
RCDR	Recorder
RCN	Requirements Change Notice
RCP	Radiation Constraints Panel
	Right Circular Polarizer
RCPT	Receipt
	Receptacle
RCR	Retrofit Configuration Record
RCRS	Regenerable CO ₂ Removal System
RCS	Reaction Control Subsystem
	Reaction Control System
RCSC	Reaction Control Subsystem Controller
RCV	Receive
RCVR	Receiver
RCW	Right Crosswind
RD	Reference Designator
	Requirements Document
	Round
RDC	Request for Document Change
RDD	Requirements Definition Document
RDF	Radio Direction Finder
RDP	Requirements Data Plan
RDR	Raw Data Recorder
RDT&E	Research Development Test and Evaluation
RE&T	Research Engineering and Test
RE-TX	Retransmission
REAC	Reaction
REC	Receive
	Record
RECP	Request for Engineering Change Proposal

RECS	Representative Shuttle Environmental Control System
RECT	Rectifier
RECV	Receive
RECVR	Receiver
REF	Reference
	Refurbish
REG	Regulate
	Regulator
REI-M	REI-Mollite
REIL	Runway End Identification Lights
REL	Relative
	Release
REM	Release Engagement Mechanism
	Remove
REND	Rendezvous
Rep	Reproduce
REPL	Replace
REQ	Request
	Require
REQMT	Requirement
RESVR	Reservoir
RETS	Reconfigurable Electrical Test Stand
REV	Reverse
	Review
	Revision
	Revolution
REV/HR	Revolutions per Hour
RF	Radio Frequency
	Return Flux
RFA	Request for Action
RFB	Request for Bid
RFC	Radio Frequency Charts
	Request For Change
RFD	Requirements Formulation Documents
RFE	Request for Estimate
RFI	Radio Frequency Interference
	Remote File Inquiry
	Request for Information
RFIT	Ready for Integrated Testing
RFP	Request for Proposal
RFPA	Request for Proposal Authorization
RFQ	Request for Quotation

RG	Rate Gyro Assembly
RGP	Rate Gyro Package
RH	Relative Humidity
	Right Hand
RHC	Rotation Hand Controller
RHCP	Right Hand Circular Polarized
RHEB	Right Hand Equipment Bay
RHL	Residual Hazards List
RI	Rockwell International
RIB	Recoverable Item Breakdown
RIC	Resistance Inductance and Capacitance
RID	Review Item Disposition
RIDI	Receiving Inspection Detail Instruction
RIF	Relative Importance Factor
RIGI	Receiving Inspection General Instruction
RIL	Recoverable Items Lists
RIU	Remote Interface Unit
RJDA	Reaction Jet Driver Aft
RJDF	Reaction Jet Driver Forward
RJOD	Reaction Jet OMS Driver
RKDY	Rockwell-Downey
RLC	Remote Load Controller
RLV	Reusable Launch Vehicle
RM	Redundancy Management
	Reference Mission
	Rescue Module
RM/MS&C	Redundancy Management/Modeling, Sequencing, and Control
RMD	Reconfiguration Management Division
RME	Radiation Monitoring Equipment
	Risk Mitigation Experiment
RMS	Remote Manipulator Subsystem
	Remote Manipulator System
	Root-Mean-Square
RMSVP	Remote Manipulator Subsystem Verification Plan
RN	Reynolds Number
RO	Responsible Organization
ROC	Record of Comments
ROEU	Remotely Operated Electrical Umbilical
ROM	Read-Only Memory
	Rough Order of Magnitude
ROMPS	Robotic Operated Materials Processing System
ROSAT	Rontgensatellite
ROT	Remaining Operating Time

RP	Relative Pressure
	Repair Period
	Rocket Propellant
RPA	Record and Playback Assembly
	Request for Procurement Action
RPC	Remote Power Controller
RPH	Revolution(s) per Hour
RPL	Rated Power Level
RPM	Revolutions per Minute
RPS	Record and Playback Subsystem
	Record/Playback System
	Revolution per Second
RPTA	Rudder Pedal Transducer Assembly
RQHW	Right Quartering Headwind
RQMTS	Requirements
RQTW	Right Quartering Tailwind
RR	Rendezvous Radar
	Requirements Review
RRL	Rudder Reference Line
RRP	Rudder Reference Plane
RRRA	Revised Range Reference Atmosphere
RRT	Rapid Response Team
	Rendezvous Radar Transponder
RS	Rawinsonde
	Refurbishment Spare
	Right Side
RSD	Requirements and Specification Document
RSF	Refurbish and Subassembly Facilities
RSGF	Rigidize-Sensing Grapple Fixture
RSI	Reusable Surface Insulation
RSLS	Redundant Set Launch Sequence
RSO	Radiological Safety Office
	Range Safety Officer
RSOC	Rockwell Space Operations Company
RSOLNK	Range Safety Officer Link Program
RSOUT	Range Safety Output
RSPL	Recommended Spare Parts List
RSRM	Redesigned Solid Rocket Motor
	Reusable Solid Rocket Motor

RSS	Range Safety System
	Reactants Supply System
	Root-Sum-Square
	Rotating Service Structure
RSSPO	Resident Space Shuttle Project Office
RSU	Remote Service Unit
RT	Real Time
	Reference Trajectory
	Right
RTC	Real-Time Command
	Room Temperature Cure
RTCC	Real-Time Computation Center
	Real-Time Computer Command
RTCE	Rotational Translation Control Electronics
RTCP	Real-Time Communications Processor
RTCS	Real-Time Computer System
RTF	Return to Flight
RTHC	Rotation-Translation Hand Controller
RTHS	Real-Time Hybrid System
RTLS	Return to Launch Site
RTN	Return
RTS	Remote Tracking Station
RTT	Requirements Tracing Tool
RTV	Room-Temperature Vulcanized
RTWAPS	Real Time Winds Aloft Processing System
RV	Recovery Vehicle
	Recovery Vessel
	Reentry Vehicle
	Relief Valve
RVAS	Requirements Verification Accounting System
RVDT	Rotary Variable Differential Transducer
RVMU	Requirements Verification Mission Unique
RVN	Requirements Verification Network
RVR	Runway Visual Range
RVS	Reverse
RZ	Return-to-Zero

S	Second Side Stere
S&A	Safe and Arm
S&E	Science and Engineering (Directorate-MSFC)
S&MA	Safety and Mission Assurance
S&O	Safety and Obsolescence (Replaced by SSUPRCB)
S-band	1.55 to 5.2 Gigahertz per Second
S-BD	S-Band
S-N	Stress Number
S/A	Safe and Arm Site Activation Subassembly
S/C	Sensor/Controller Signal Conditioner Software Contractor Subcontractor
S/F	Safety Factor
S/G	Strain Gage
S/M	Service/Maintenance
S/MM	Shuttle/Mir Mission
S/N	Serial Number
S/O	Shutoff Switchover
S/P	Signal Processor
S/R	Send and Receive
S/S	Samples per Second
S/Sys	Subsystem
S/U	Set Up
S/V	Space Vehicle
S/W	Software
S1	Segment Starboard 1 (SSF/MB-03)
S2	Segment Starboard 2 (SSF/MB-02)
S3/S4	Segment Starboard 3/Starboard 4 (SSF/MB-01)
SA	Sneak Analysis Subaccount Supplemental Agreement
SA-ALC	San Antonio Air Logistics Center
SAA	Safety Assurance Analysis
SAAC	Schedule Allocation and Control
SAAMA	San Antonio Air Material Area
SAAS	Shuttle Aerosurface Actuator Simulation

SAB	Spacecraft Assembly Building Storage and Assembly Building
SAC	Shuttle Action Center (MSFC) Strategic Air Command
SAC-A	Satellite De Aplicaciones/Cientifico-A
SACS	Software Avionics Command Support
SAD	Shuttle Authorized Document System Allocation Document
SAE	Society of Automotive Engineers
SAF	Spanish Air Force
SAFER	Simplified Aid for EVA Rescue
SAIL	Shuttle Avionics Integration Laboratory
SAL	Shuttle Avionics Laboratory
SAM	Shuttle Attachment Manipulator
SAMP	Shuttle Automated Mass Properties
SAMS	Space Acceleration Measurement System
SAMSO	Space and Missile Systems Organization (Air Force)
SAMTEC	Space and Missile Test Center (VAFB)
SAMTECM	Space and Missile Test Center Manual
SAN	Software Authorization Notice
SAND	Site Activation Need Date
SAP	Strain Arrestor Plate
SAR	Safety Analysis Report Safety Assessment Report Search and Recovery Search and Rescue Single-Axis Rotation Space Adaptation Research Summary Analysis Report
SAREX	Shuttle Amateur Radio Experiment
SAS	Software Approval Sheet Stability Augmentation Subsystem
SASCB	Shuttle Avionics Software Control Board
SASR	Shuttle Avionics Systems Review
SAT	Saturated
SATS	Shuttle Avionics Test System
SAU	Strap Around Unit
SBD	Schematic Block Diagram
SBHC	Speed Brake Hand Controller
SC	Signal Conditioner Subcarrier

SCA	Schedule Change Authorization Shuttle Carrier Aircraft Sneak Circuit Analysis
SCAN	Selected Current Aerospace Notices
SCAPE	Self-Contained Atmospheric Protective Ensemble
SCARS	Serialized Control and Record System Sneak Circuit Analysis Report Summary
SCB	Schedule Change Board Selector Control Box Software Control Board
SCC	Specification Configuration Chart Standard Cubic Centimeters
SCCB	Site Configuration Control Board
SCCH	Standard Cubic Centimeters per Hour
SCCM	Standard Cubic Centimeters per Minute
SCCS	Standard Cubic Centimeters per Second
SCD	Source Control Document Specification Control Document Specification Control Drawing
SCDA	Safing, Cooldown and Decontamination Area
SCDP	Simulation Control Data Package
SCDR	System Cable Distribution Rack
SCE	Signal Conditioning Equipment
SCF	Satellite Control Facility Sequenced Compatibility Firing
SCFH	Standard Cubic Feet per Hour
SCFM	Standard Cubic Feet per Minute
SCFS	Standard Cubic Feet per Second
SCHEM	Schematics
SCI	Switch Closure In
SCIM	Standard Cubic Inches per Minute
SCIT	Standard Change Integration and Tracking
SCL	Secondary Coolant Loop Specification Change Log
SCLM	Stability, Control and Load Maneuvers
SCMB	Development Configuration Management Board
SCMP	System Contractor Management Plan
SCN	Software Change Notice Specification Change Notice
SCO	Start Checkout Subcarrier Oscillator Switch Closure Out
SCR	Schedule Change Request Sneak Circuit Report Software Change Request

SCRG	System Change Review Group (MSFC)
SCRL	Station Configuration Requirement List
SCS	Stabilization and Control Subsystem
SCU	Secondary Control Unit
	Signal Conditioning Unit
SD	Shutdown
	Specification Document
SD/FS	Smoke Detection/Fire Suppression
SDB	Shallow Draft Barge
SDC	Shuttle Data Center
SDCB	Shuttle Data Control Board
SDCS	SAIL Data Communications System
SDD	Shuttle Design Directive
	Software Description Document
SDE	Space Division Evaluator
SDF	Safing and Deservicing Facility
	Single Degree of Freedom
	Software Development Facility
	System Development Facility
SDH	System Development Handbook
SDL	Software Development Laboratory
	Standard Distribution List
SDM	Schedule Data Management
	System Definition Manual
SDN	Software Development Note
SDP	Shuttle Data Processor
SDPC	Shuttle Data Processing Complex
SDR	Software Design Requirements
	System Design Review
SDRB	Software Design Review Board
SDRD	Specific Design Requirements Document
SDS	Shuttle Dynamic Simulation
	Software Design Specification
SDSD	Systems Development and Simulation Division
SDSS	Space Division Shuttle Simulator
SDT	Structural Dynamic Test
SDTA	Structural Dynamic Test Article
SE	Student Experiment
	Support Equipment
	System Element
SE/FAC	Support Equipment/Facility
SEA	Silicon Elastimeter Ablator
SEACF	Support Equipment Assembly and Checkout Facility

SEAID	Support Equipment Abbreviated Items Description
SEAPG	Support Equipment Acquisition Planning Group
SEB	Source Evaluation Board
	Support Equipment Building
SEC	Second
	Secondary
	Sequential Events Controller
SECIB	Shuttle Engineering Change Implementation Board
SEDSAT	Students for the Exploration and Development of Space Satellite
SEI	Support Equipment Installation
SEICO	Support Equipment Installation and Checkout
SEL	Selector
SEM	Scanning Electron Microscope
	Space Experiment Module
	Student Experiment Module
SEND	Shared Equipment Need Date
SEO	Special Engineering Order
	Systems Engineering Office
SEP	Separation
SEPAR	Shuttle Electrical Power Analysis Report
SEPS	Spacecraft Electrical Power Simulation
SEQ	Sequence
	Sequencer
SER	Serial
SERB	Systems Engineering Review Board
SES	Shuttle Engineering Simulation
	Shuttle Engineering Simulator
	Special Emphasis Study
SESL	Space Environmental Simulation Laboratory
SF	Square Feet
	Static Firing
	Subcontractor Furnished
SFC	Specific Fuel Consumption
SFF	Shuttle Ferry Flight
SFL	Secondary Freon Loop
SFOC	Space Flight Operations Contract
SFOM	Shuttle Flight Operations Manual
SFP	Single Failure Point
SFPA	Single Failure Point Analysis
SFPPL	Short Form Provisioning Parts List
SFPS	Single Failure Point Summary
SFT	Simulated Flight Test
	Static Firing Test

SFTA	Structural Fatigue Test Article
SFTF	Static Firing Test Facility
SFU	Standard Firing unit
SFU-RETR	Space Flyer Unit - Retrieval
SGLS	Space Ground Link Station
SGOS	Shuttle Ground Operations Simulator
SGSC	Strain Gage Signal Conditioner
SHA	Sidereal Hour Angle
	System Hazard Analysis
SHAG	Simplified High Accuracy Guidance (Honeywell)
SHARE	Space Station Heat Pipe Advanced Radiator Element
SHF	Super High Frequency
SHLB	Simulation Hardware Load Boxes
SHOOT	Superfluid Helium On-Orbit Transfer
SHP	Shaft Horsepower
SI	Solar Inertial
SIAP	System Integrity Assurance Program
SIAPP	Systems Integrity Assurance Program Plan
SID	Simulator Interface Devices
	Standard Interface Document
	System Interface Document
SIL	Sound Interference Level
	Systems Integration Laboratory
SIM	Simulate
	Simulation
SIMAS	Shuttle Information Management Accountability System
SIMFAC	Simulation Facility
SIMPLEX	Shuttle Ionospheric Modification with Pulsed Localized Exhaust
SIMR	System Integration Management Review
SIMS	Shuttle Inventory Management System
	Simulations
SIO	Serial Input/Output
SIP	Standard Integration Plan
	Standard Interface Panel
	Strain Isolator Pad
	System Integration Plan
SIPS	Small Instrument Pointing System
SIR	Systems Integration Review
SIR-B	Shuttle Imaging Radar-B
SIS	Shuttle Information System
	Simulator Interface Subsystem
	Software Implementation Specification
	Software Integrated Schedule
	Systems Integration Schedule

SIT	Shuttle Integrated Test Situation
SIVE	Shuttle Interface Verification Equipment
SL	Sea Level
	Sound Level
SL-D2	Spacelab D2
SL-D2/CAP	Spacelab D2/Complex Autonomous Payload Deployable Satellites
SL-E1	Spacelab European Mission - 1
SL-E2	Spacelab European Mission - 2
SL-J	Spacelab Japan
SL-M	Space Shuttle Rendezvous with the MIR Space Station
SLA	Shuttle Laser Altimeter
SLAHTS	Stowage List and Hardware Tracking System
SLAM	Side Load Arrest Mechanism
SLAR	Side Looking Airborne Radar
SLC	Space Launch Complex
SLCH	Spacelab Cargo Harness
SLD	Stiff-Leg Derrick
SLF	Shuttle Landing Facility
SLS	Secondary Landing Site
	Spacelab Life Sciences
	Spacelab Simulator
SLSTP	Space and Life Sciences Training Program
SLWT	Super Lightweight Tank
SM	Support Module
	Systems Management
	Systems Monitor
SM/PM	System Management/Performance Monitor
SMAB	Solid Motor Assembly Building
SMAC	Shuttle Management Action Center
SMCC	Shuttle Mission Control Center
SMCH	Standard Mixed Cargo Harness
SMD	Special Measuring Device
SMDC	Shielded Mild Detonating Cord
SMES	Shuttle Mission Engineering Simulator
	Shuttle Mission Evaluation Simulation
SMG	Spaceflight Meteorology Group
SMPM	Structural Materials Property Manual
SMPTRB	Shuttle Main Propulsion Test Requirement Board
SMR	Source, Maintenance, and Repair (Code)
SMRC	Source, Maintenance, and Recoverability Code

SMRD	Spin Motor Run Discrete
SMRM	Solar Maximum Repair Mission
SMS	Separation Mechanism Subsystem
	Shuttle Mission Simulator
	Software Modification Sheet
SMSCC	Shuttle Mission Simulator Computer Complex
SMSI	Standard Manned Space Flight Initiator (Now NSI-I)
SMTAS	Shuttle Model Test and Analysis System
SMTF	Shuttle Mission Training Facility
SMTFU	Shuttle Mission Training Facility Upgrade
SMVP	Shuttle Master Verification Plan
SMVRD	Shuttle Master Verification Requirements Document
SMWLL	Super Middle Weight Longeron Latch
Sn	Switch n
SN	System Note
SNA	System Network Architecture
SND	Signal-to-Noise Ratio
SNR	Signal-to-Noise Ratio
SOAS	Shuttle Orbiter Arresting System
SOC	Space Operations Contractor
	Support Operations Center
SOCAR	Shuttle Operational Capability Assessment Report
SOCCB	Secure Operations Configuration Control Board
SODB	Shuttle Operational Data Book
	Shuttle Operations Data Book
SOF	Safety of Flight
SOFI	Spray-on Foam Insulation
SOFT	Solar Max Solar Maximum
	Space Operations and Flight Techniques
SOM	Spares Optimization Model
	Standard Operating Manual
SOMS	Shuttle Orbiter Medical System
SOP	Secondary Oxygen Pack
	Standard Operating Procedure
	Subsystem Operating Procedure
	Systems Operation Plan
SOS	Source of Supply
SOTC	Secure Operational Teletype
SOTS	Simplified Orbiter Thermal Simulator
SOV	Shut Off Valve
	Solenoid Operated Valve
SOW	Statement of Work
	Subdivision of Work

SP	Single Pole
	Single Precision, Floating Point
SP 201	Spartan 201
SP 204	Spartan 204
SPA	Servo Power Amplifier
	Shared Peripheral Area
	Signal Processor Assembly
	Small Payload Accommodations
SPACE	Shuttle/Payload Contamination Evaluation
SPACEHAB	SPACEHAB
SPAD	Shuttle Performance Assessment Data Book
SPADS	Shuttle Problem Action Data System
SPAN	Spacecraft Analysis
SPAR	Shuttle Project Action Request
SPART	Space Research and Technology
SPARTAN	Shuttle Pointed Autonomous Research Tool for Astronomy
SPAS-III	Shuttle Pallet Satellite - III Follow-on
SPASP	Small Payload Accommodations Switch Panel
SPAT	Small Payload Accommodations Terminal
SPBK	Speed Brake
SPC	Shuttle Processing Contract
	Shuttle Processing Contractor
	Statistical Process Control
	Stored Program Command
SPDCI	Standard Payload Display and Control Interface
SPDM	Special Purpose Dexterous Manipulator (SSF/MB-07)
SPDS	Stabilized Payload Deployment System
spec	Specialist Function
SPEC	Specification
SPECT	Spectrometer
SPEE	Special Purpose End Effector
SPF	Software Production Facility
SPFA	Single Point Failure Analysis
SPG	Single Point Ground
SPI	Surface Position Indicator
SPIAP	Shuttle/Payload Integration Activities Plan
SPIDPO	Shuttle Payload Integration and Development Program Office (JSC)
SPIF	Shuttle Payload Integration Facility
SPIFEX	Shuttle Plume Impingement Flight Experiment
SPII	Shuttle Program Implementation Instruction
SPIMS	Shuttle Program Information Management System

SPL	Serialized Parts List
	Sound Pressure Level
	System Programming Language
SPM	Standard-Performance Motor
	Subsystem Project Manager
SPO	Shuttle Projects Office
	Spare Parts Order
SpOC	Space Operations Computing
SPP	Simulation Planning Panel
	Solar Physics Payloads
SPPIL	Shuttle Preferred Pyrotechnic Items List
SPPL	Spare Parts Provisioning List
SPR	Software Problem Report
SPS	Samples per Second
	Shuttle Procedures Simulator
SPTD	Supplementary Provisioning Technical Documentation
sq	Square
sq ft	Square Foot(Feet)
sr	Storadian
SR	Shift Register
	Standard Repair
	Status Register
	Status Report
	Status Review
	Support Request
	Support Requirement
	System Review
SR&Q	Safety, Reliability and Quality
SR&QA	Safety, Reliability and Quality Assurance
SRA	Spin Reference Axis
	Support Requirements Analysis
SRB	Solid Rocket Booster
SRBAB	SRB Assembly Building
SRBDF	SRB Disassembly Facility
SRCB	Software Requirements Control Board
SRCBD	Software Requirements Control Board Directive
SRD	Software Release Document
SRDD	System Requirements and Design Document
SRDH	System Requirements Definition Handbook
SRF	Shuttle Refurbish Facility
SRH	Subsystems Requirements Handbook
SRL	Space Radar Lab

SRM	Solid Rocket Motor
	Specification Requirements Manual
	Standard Reference Material
SRM&QA	Safety, Reliability, Maintainability & Quality Assurance
SRMS	Shuttle Remote Manipulator System
SRN	Software Release Notice
SRR	Simulation Readiness Review
	Site Readiness Review
	Software Requirements Review
	System Requirements Review
SRS	Software Requirements Specification
	Specification Revision Sheet
	Support Requirements System
SRSD	System Requirement Summary Document
SRSF	SRB Receiving and Subassembly Facility
SRSR	Schedule and Resources Status Report
SRT	Security Response Team
	Shuttle Requirements Traceability
	Specification Requirements Table
	Supporting Research and Technology
SRTM	Shuttle Radar Topography Mission
SRU	Shop-Replaceable Unit
	Shop-Replacement Unit
SS	Single Sideband
	Single String
	Space Shuttle
	Space Station
	Station Set
	Subsystem
SSA	Shuttle Simulation Aircraft
	Space Suit Assembly
SSAF-01-1A	Space Station Assembly Flight-01/American Mission #1
SSAF-12-1J/A	Space Station Assembly Flight-12/Japanese-American Mission #1
SSAF-13-1J	Space Station Assembly Flight-13/Japanese Mission #1
SSAF-16-1E	Space Station Assembly Flight-16/European Mission #1
SSAO	Space Shuttle Avionics Officer
SSAT	Shuttle Service and Access Tower
SSB	Single Sideband
	Source Selection Board
SSBUV/A	Shuttle Solar Backscatter Ultraviolet/A
SSC	Shuttle System Contractor
	Stennis Space Center (formerly NSTL/MTF)
	Subsystem Sequence Controller

SSCE	Solid Surface Combustion Experiment
SSCHS	Space Shuttle Cargo Handling System
SSCL	Shuttle System Commonality List
SSCR	Shuttle Software Change Request
SSCSP	Space Shuttle Crew Safety Panel
SSD	Space Systems Division (Rockwell)
	Space Systems Division (United States Air Force)
SSDC	Shuttle System Design Criteria
SSDD	Space Shuttle Design and Dynamics
SSDH	Subsystem Data Handbook
SSE	Software Sustaining Engineering
	Subsystem Element
	Subsystem Support Equipment
SSEOS	Space Shuttle Engineering and Operations Support
SSF	SRB Storage Facility
SSF/MB	Space Station Freedom/Mission Build
SSFGSS	Space Shuttle Flight and Ground System Specification
SSFL	Santa Susana Field Laboratory
*SSFP	Space Station Freedom Program
SSHA	Subsystem Hazard Analysis
SSHB	Station Set Handbook
SSID	Subsystem Identification
SSIP	Systems Software Interface Processing
SSLV	Space Shuttle Launch Vehicle
SSM	Subsystem Manager
SSMB	Space Shuttle Maintenance Baseline
SSMBRD	Space Shuttle Maintenance Baseline Requirements Document
SSME	Space Shuttle Main Engine
SSMEC	Space Shuttle Main Engine Controller
SSMECA	Space Shuttle Main Engine Controller Assembly
SSO	Source Selection Official
	Space Shuttle Orbiter
SSP	Space Shuttle Program
	Standard Switch Panel
SSPD	Space Shuttle Program Directive
SSPIA	Space Shuttle Program Interface Agreement
SSPM	Space Shuttle Program Management
SSR	Station Set Requirement
SSRD	Station Set Requirements Documents
SSRN	System Software Reference Number
SSRP	Systems Safety Review Panel

* Deleted from requirements when SSFP was redesignated as ISSAP

SSRR	Station Set Requirements Review
SSS	Space Shuttle System
SSSP	System Safety Subpanel
SST	Single System Trainer
	Structural Static Test
SSTC	Space Shuttle Test Conductor
SSU	Space Shuttle Upgrades
SSUF-01	Space Station Utilization Flight-01
SSUPRCB	Space Shuttle Upgrades PRCB
SSUS	Spinning Solid Upper Stage
SSUS-D	SSUS for Delta Class Spacecraft
SSUSP	Spinning Solid Upper Stage Project
SSV	Space Shuttle Vehicle
SSVE	Space Shuttle Vehicle Engineering
SSVEO	Space Shuttle Vehicle Engineering Office
ST	Sequential Timer
	Simplification Task
	Special Tooling
	Star Tracker
	Structural
STA	Shuttle Training Aircraft
	Static Test Article
	Station
	Structural Test Article
STAB	Stabilizer
STADAC	Station Data Acquisition and Control
STADAN	Space Tracking and Data Acquisition Network
STAG	Shuttle Turnaround Analysis Group
STAR	Scientific and Technical Report
	Shuttle Turnaround Analysis Report
	Space Transportation Automated Reconfiguration
STARR	Schedule, Technical, and Resources Report
STAT	Statistics
STBD	Starboard
STC	Satellite Test Center
	Standard Test Configuration
	Systems Test Complex
STD	Special Test Device
	Standard
STDN	Spaceflight Tracking and Data Network
STE	Special Test Equipment
	System Test Engineer
STEX	Sensor Technology Experiment
STF	Structural Fatigue Test
STG	Stage

STIRD	SAIL Test Implementation/Requirements Document
STIVANS	Simulation
	Six Degree-of-Freedom Time Varying Non-Linear
STL	Space Tissue Loss Model
STL/NIH-C	National Institutes of Health - Cells
STLOS	Star Line of Sight
STM	Signal Termination Module
STN	Software Trouble Note
STP	Space Test Payload
	Space Test Program
STR	Structure
STRG	Steering
STRL	Structural
STRUC	Structure
STS	Shuttle Test Station
	Space Transportation System
STSR	System Test Summary Report
STU	Special Test Unit
STVS	Secure Television System
SU	Support Unit
SUP	Supply
SUPT	Support
SURE	Shuttle Users Review and Evaluation
SURS	Shuttle Umbilical Retraction/Retention System
SUVE	Solar Ultraviolet Experiment
SV	Safety Valve
	Shuttle Vehicle
	Solenoid Valve
	Space Vehicle
SVA&C	Shuttle Vehicle Assembly and Checkout
SVAB	Shuttle Vehicle Assembly Building
SVB	Shuttle Vehicle Booster
SVC	Supervisor Call
SVCP	System Verification/Certification Plan
SVDS	Space Vehicle Dynamic Simulator
	Space Vehicle Dynamics Simulation
SVF	Shuttle Vibration Forces
SVS	Space Vision System
SW	Short Wave
	Software
	Switcher
SWA	Support Work Authorization
SWAD	Subdivision of Work Authorization Document

SWAT	Stress Wave Analysis Technique
SWOB	Salaries, Wages, Overhead and Benefits
SWP	Safe Working Pressure
SWUIS	Southwest Ultraviolet Imaging System
SYM	Symbol
SYMM	Symmetrical
SYNC	Synchronous
SYNCOM	Hughes Spin Stabilized Spacecraft Synchronous Communication Satellite
SYS	System
SYSTRAN	Systems Analysis Translator

THIS PAGE INTENTIONALLY LEFT BLANK

T	Temperature
	Test
	Time
T&M	Time and Materials
T&O	Test and Operations
T-	Time to Launch
T-O	Takeoff
T-4	4 Hours Prior to Launch
T-TCA	Thrust/Translation Control Assembly
T/A	Turnaround
T/C	Termination Check
T/D	Time Delay
	Touchdown
T/E	Transporter/Erector
T/L	Talk and Listen
T/R	Tape Recorder
	Technical Report
	Transformer Rectifier
	Transmit/Receive
	Transportation Request
	Turnaround Requirements
T/T	Terminal Timing
	Timing/Telemetry
T/W	Thrust-to-Weight
TAC	Tactical Air Command
TACAN	Tactical Air Command and Navigation System
	Tactical Air Navigation
TACCS	Time, Age, Cycle Control System
	Time/Age/Cycle Control System
TACO	Test and Checkout Operations
TAD	Temperature and Dewpoint
TAEM	Terminal Approach Energy Management
	Terminal Area Energy Management
TAER	Telemetry Analog Equipment Room
	Terminal Approach Energy Management
TAG	Technical Air-to-Ground
TAIR	Test and Inspection Model
TAL	Transatlantic Abort Landing
	Transoceanic Abort Landing
TALAR	Tactical Approach and Landing Radar
TAM	Thermal Analytical Model
TAN	Tananarive, Madagascar (STDN)
TAP	Technical Achievement Plan
	Telemetry Acceptance Pattern
	Test Administration Plan
	Total Air Pressure

TAR	Technical Analysis Request Test Action Requirement Test Agency Report
TAS	Telemetry Antenna Subsystem True Air Speed
TAT	Total Air Temperature
TB	Talk Back (annunciator)
TBA	To Be Added
TBD	To Be Determined To Be Developed
TBE	To Be Evaluated
TBN	To Be Negotiated
TBP	To Be Provided
TBS	To Be Specified To Be Superseded To Be Supplied
TC	Telecommunications Test Conductor Thermocouple Thiokol Corporation Thrust Chamber
TCA	Thrust Chamber Assembly Tool Container Assembly
TCAB	Temperature of Cabin
TCC	Thermal Control Coating
TCD	Test Completion Date
TCDT	Terminal Countdown Demonstration Test
TCG	Time Code Generator
TCID	Test Configuration Identifier
TCMD	Transportation Control and Movement Document
TCN	Test Change Notice Transportation Control Number
TCO	Test and Checkout
TCOP	Test and Checkout Plan
TCP	Test Checkout Procedure
TCR	Thermal Concept Review
TCRSD	Test and Checkout Requirements Specification Document
TCS	Test Case Specification Test Control Sequences Test Control Superior Thermal Control Subsystem Trajectory Control Sensor
TCTI	Time Compliance Technical Instruction
TCU	Tape Control Unit

TD	Technical Directive Terminal Distributor
TDCC	Technical Data Change Concurrences
TDD	Task Description Document
TDDP	Trajectory Design Data Package
TDL	Technical Direction Letter
TDM	Time-Division Multiplexing
TDMS	Technical Document Management System
TDRS	Tracking and Data Relay Satellite
TDRSS	Tracking and Data Relay Satellite System
TDS	Test Data System
TE	Test Equipment
TEAMS	Technology Experiments Advancing Missions in Space
TEC	Test Equipment Center Time Executed Command
TECH	Technical Technician
TELCON	Telecommunications
TEMP	Temperature Thermal Energy Management Processes
TEMS	Transport Environment Monitoring System
TEOS	Tetraethyl Orthosilicate
TER	Test Equipment Readiness Time Estimating Relationship
TERL	Test Engineers Readiness List
TF	Test Facility Test Fixture Transmittal Form
TFC	Time From Cutoff
TFCS	Triplex Flight Control Subsystem
TFE	Tetrafluoroethylene Time From Event
TFI	Time From Ignition
TFL	Telemetry Format Load Time From Launch
TFS	Telemetry Format Selection
TGA	Thermal Gravimetric Analysis Trace Gas Analyzer
TGDF	Turbulent Gas-Jet Diffusion Flames
TGS	Telemetry Ground Station Telemetry Ground System
TGSE	Telemetry Ground Support Equipment

TGT	Target
THC	Translation Hand Controller
THETA	Pitch Attitude Angle
TI	Technical Integration
	Thiokol Incorporated
TIC	Technical Information Center
TICM	Test Interface and Control Module
TIFS	Total In-flight Simulator
TII	Tooling Inspection Instrumentation
TIM	Technical Interchange Meeting
TIS	Test Interface Subsystem
TL	Lot Traceability
	Thrust Level
TLAMS	Trajectory and Loads Analysis and Management System
TLM	Telemetry
TM	Member Traceability
	Technical Management
	Telemetry
	Traffic Model
TMC	Test Monitoring Console
TMF	Transporter Maintenance Facility
TML	Total Mass Loss
TMM	Thermal Math Model
TMO	Test Manufacturing Order
	Tool Manufacturing Order
TMP	Terminal Panel
TMPV	Torquemotor Pilot Valve
TMR	Technical Management Representative
TMU	Temperature Measurement Unit
TN	Technical Note
TO	Technical Order
TOC	Test Operations Center
	Test Operations Change
TOCC	Test Operations Control Center
TOD	Greenwich True-of-Date Cartesian Coordinate
TOL	Tolerance
TOP	Technical Operating Procedure
	Tethered Optical Phenomena
TOPS	Technical Operating Procedures
TOS	Transfer Orbit Stage
TOT	Total
TP	Test Point
	Transition Period
	Twisted Pair
	Type

TP&C	Thermal Protection and Control
TPA	Test Preparation Area
TPAD	Trunnion Pin Attachment Device
TPC	Telemetry Preprocessor Computer
TPDS	Test Procedures Development System
TPE	Test Project Engineer
TPI	Terminal Phase Initiation
TPM	Technical Performance Measurement (System)
	Terminal Phase Maneuver
TPMRB	Thermal Protection Subsystem Program Material Review Board
TPO	Test Program Outline
TPR	Test Problem Report
TPS	Test Preparation Sheet
	Thermal Protection System
TPS/S	Thermal Protection Subsystem
TPS/S PMRB	Thermal Protection Subsystem Program Material Review Board
TPUN	Test Procedure Update Notice
TQA	Tangent Quarter Angle
TQCM	Temperature-Controlled Quartz Crystal Microbalance
TQM	Test Quality Monitor
	Total Quality Management
TR	Test Request
TRA	Training Requirements Analysis
	Turnaround Requirements Analysis
TRACS	Tool Record Accountability System
TRAJ	Trajectory
TRASYS	Thermal Radiation Analysis System
TRD	Test Requirements Document
TRE	Torso Rotation Experiment
TRL	Test Readiness List
TRNG	Training
TRP	Technical Review Panel
TRR	Test Readiness Review
TRS	Teleoperator Retrieval System
TRSD	Test Requirements Specification Document
TS	Serial Traceability
	Technical Support
	Tensile Strength
	Test Site
TSA	Test Start Approval
TSAC	Tracking System Analytic Calibration
TSC	Test Setup Complete
	Test Support Coordinator

TSCO	Test Support Coordination Office
TSCP	Training Simulator Control Panel
TSD	Test Start Date
TSE	Transportation Support Equipment
TSLD	Troubleshooting Logic Diagram
TSM	Tail Service Mast
TSO	Time Sharing Option
	Time Since Overhaul
TSP	Twisted Shielded Pair
TSR	Technical Status Review
TSRA	Total System Requirements Analysis
TSS	Tethered Satellite System
TT	Thrust Termination
TTA	Technical Task Agreement
	Thermomechanical Test Area
TTCV	Tracking Telemetry, Command and Voice
TTE	Test, Teardown Evaluation
TTL	Thermal Trade Line
	Transistor-to-Transistor Logic
TTM	Test Technical Monitor
TTU	Timing Terminal Unit
TTY	Teletype
TU	Technology Utilization
TV	Television
	Thermal Vacuum
	Thrust Vector
TV/PAO	Television/Public Affairs Office
TVA	Thrust Vector Alignment
TVAR	Test Variance
TVC	Television Camera
	Thermal Vacuum Chamber
	Thrust Vector Control
TVMP	TV Monitor Panel
TVN	Test Verification Network
TVP	Test Verification Program
TVS	Thermal Vacuum Stability
TVT	Thermal Vacuum Test
TVTA	Thermal Vacuum Test Article
TW	Tailwind
	Twisted
TWDS	Twisted Double Shielded
TWR	Tower
TWS	Twisted Shielded
TWT	Trisonic Wind Tunnel (Rockwell)
TWX	Teletype Wire Transmission
TYP	Typical

U/D	Update
U/L	Uplink
UARS	Upper Atmospheric Research Satellite
UBA	Unpressurized Berthing Adapter (SSF/MB-01)
UC	Unsatisfactory Condition
UCN	Uniform Control Number
UCR	Unsatisfactory Condition Report
UCS	Universal Control System
	Utilities Control System
UD	Update
UDB	Update Buffer
UDF	Utility and Data Flow
UDL	Update Link
UDS	Universal Documentation System
UHF	Ultrahigh Frequency
UK	United Kingdom
ULC	Unpressurized Logistics Carrier (SSF/UF-01)
ULL	Ullage
ULO	Unmanned Launch Operations
ULT	Ultimate
UMB	Umbilical
UMO	Unmanned Orbital
UMPS	Up Mission Processing Start
UMVF	Unmanned Vertical Flight
UON	Unless Otherwise Noted
UPLK	Uplink
UR	Unsatisfactory Report
US	United States
USA	United Space Alliance
USAF	United States Air Force
USB	Unified S-Band
	Upper Side Band
USBE	Unified S-Band Equipment
USBI	United Space Booster Inc
USBS	Unified S-Band System
USI	Update Software Identity
USL-A	U.S. Laboratory Module (SSF/MB-06 [MTC])
USML-1	United States Microgravity Laboratory
USMP	United States Microgravity Payload
USNS	United States Navy Ship
USS	Umbilical Separation System
	United States Ship
	United States Standard

UST	United States Testing Company
UT	Universal Time
UTC	United Technology Center
	Universal Test Console
	Universal Time, Coordinated
UTE	Universal Test Equipment
UV	Ultraviolet
	Under Voltage
UVD	Under Voltage Device
UVF	Unmanned Vertical Flight

+VBAR	Positive Velocity Vector (Forward)
V	Velocity
	Voice
	Volt
	Voltage
V&DA	Video and Data Assembly
V&V	Verification & Validation
V-A	Vibro-Acoustic
	Volt-Ampere
V/C	Vector Control
	Velocity Counter
VA/TVTA	Vibro-Acoustic/Thermal/Vacuum Test Article
VAA	Vehicle Assembly Area
VAB	Vehicle Assembly Building
	Vertical Assembly Building
VAC	Vacuum
	Vehicle Assembly and Checkout
	Volts, Alternating Current
VAFB	Vandenberg Air Force Base
VAN	USNS Vanguard (STDN)
VAR	Variable
	Verification Analysis Report
VASI	Visual Approach Slope Indicator
VAT	Vibro-Acoustic Test
VATA	Vibro-Acoustic Test Article
VATF	Vibration and Acoustic Test Facility
VC	Vector Character
	Visibly Clean
VCE	Voice
VCI	Velocity Change Indicator
VCM	Verification Comparison Matrix
	Volatile Condensible Material
VCN	Verification Completion Notice
VCO	Voltage Controlled Oscillation
VCP	Verification Complete Package
VCR	Video Cassette Recorder
VCS	Voice Command System
VCT	Voltage Control Transfer
VCU	Video Control Unit
VDA	Vacuum Deposited Aluminum
VDC	Volts, Direct Current
VDD	Version Description Document

VDS	Vehicle Dynamics Simulator
VDT	Vehicle Data Table
VECB	Vehicle Engineering Control Board
VEEI	Vehicle Electrical Engine Interface
VEH	Vehicle
VERIF	Verification
VERT	Vertical
VFI	Verification Flight Instrumentation
VFT	Vertical Flight Test (Superseded by OFT)
	Visual Flight Rule
	Visual Function Tester
VGP	Vehicle Ground Point
VG	Vehicle Ground Test
VHF	Very High Frequency
VIB	Vibration
VIEW-CPL	Visualization in an Experimental Water-Capillary Pumped Loop
VIPOR	Visual Investigation Program on Orbiter Operations
VIS	Verification Information System
	Visibility
VITO	Vehicle Integration Test Office
VL	Viewing Light
VL	Very Low Frequency
VLPS	VAFB Launch Processing System
VLS	Vandenberg Launch Site
VLV	Valve
V/m	Volt per Meter
VMS	Velocity Measuring System
VO	Vehicle Operations
VOL	Volume
VOR	VHF Omnidirectional Radio Range
VORTAC	Variable Omni Range Tactical (Combination of VOR and TACAN)
VOX	Voice Operated Transmitter
VP	Vacuum Pump
	Verification Polarization
VPF	Vertical Processing Facility
VPHD	Vertical Payload Handling Device
VPM	Vehicle Project Manager
VR	Verification Requirement
	Voltage Relay
VRB	VHF Recovery Beacon
VRCS	Vernier Reaction Control System
VRL	Vertical Recovery Line
VS	Vehicle Schematic
VSA	Variable Stability Aircraft
	Verification Site Approval

VSI	Vertical Speed Indicator
	Video Simulation Interface
VSTAG	Vandenberg Shuttle Turnaround Analysis Group
VSU	Video Switching Unit
VSWR	Variable Standing Wave Ratio
	Voltage Standing Wave Ratio
VTN	Verification Test Network
VTP	Verification Test Program
VTR	Video Tape Recorder
VTs	Vertical Test System
VTVM	Vacuum Tube Voltmeter
VU	Vehicle Utility
VU/G9	Vehicle Utilities/GNC Operational Sequence 9

W	Watt
	West
	Wide
W&C	Wire and Cable
W-hr	Watts/Hour
W/B	Wideband
W/G	Water/Glycol
W/O	Without
W/S	Workstations
W/T	Wind Tunnel
W/WMS	Water/Waste Management Subsystem
WA	Work Authorization
WAD	Work Authorization Document
WADS	Work Authorization Documents
WAT	Web Action Time
WB	Wet Bulb
WBS	Work Breakdown Structure
WBSC	Wide Band Signal Conditioner
WBT	Wide Band Terminal
WBTS	Wideband Transmission System
WCC	Western Computing Center
WCCS	Wireless Crew Communicator System
WCCU	Wireless Crew Communications Unit
WCL	Water Coolant Loop
WCS	Waste Collection System
	Work Control System
	Writable Control Storage
WD	Width
	Work Days
WEA	Weather
WETF	Weightless Environment Training Facility
WG	Wave Guide Wing
	Wing
WGS	World Geodetic System
WHL	Wheel
WIF	Water Immersion Facility
WINDEX	Window Experiments
WIP	Work In Process
WL	Wave Length
WLA	Wide (angle) Lens Assembly (for camera)
WO	Work Order
WOSE	Weather Officer in Space Experiment

WOW	Weight on Wheels
	Worst-on-Worst
WP	Wind Persistence
	Work Package
	Working Pressure
WPAFB	Wright Patterson Air Force Base
WPF	Work Process Flow
WPI	Work Process Indicator
WPM	Words per Minute
WPS	Words per Second
WRG	Wiring
WS	Wind Shield
WSB	Water Spray Boiler
WSF	Wake Shield Facility
WSMC	Western Space and Missile Center
WSMR	White Sands Missile Range
WSO	Weather Support Office
WSSH	White Sands Space Harbor
WSTF	White Sands Test Facility
WT	Weight
	Wire Ticket
WTA	Wire Traceability and Accountability
WTR	Western Test Range
WTSC	Wet Tantalum Slug Capacitor
WTT	Wind Tunnel Test
WUC	Work Unit Code
WVCF	Western Vehicle Checkout Facility
WW	Water Waste
WWW	World Wide Web

X SUB O	Orbiter Structural Body Reference, X-Axis
X SUB P	Payload Structural Body Reference, X-Axis
X SUB S	SRB Structural Body Reference, X-Axis
X SUB T	ET Structural Body Reference, X-Axis
X-band	5.2 to 10.9 gigahertz per second
XCVR	Transceiver
XDCR	Transducer
XDUCER	Transducer
XFD	Crossfeed
XFER	Transfer
XLTN	Translation
XMT	Transmit
XMTR	Transmitter
XPNDR	Transponder
XPTR	Transporter
XRP	X-ray Polychromator

Y	Yaw
Y SUB O	Orbiter Structural Body Reference, Y-Axis
Y SUB P	Payload Structural Body Reference, Y-Axis
Y SUB S	SRB Structural Body Reference, Y-Axis
Y SUB T	ET Structural Body Reference, Y-Axis
YD	Yard
YP	Yield Point
YR	Year
YS	Yield Strength

Z	Zone
	Zulu (Greenwich - Mean Time)
Z SUB O	Orbiter Structural Body Reference, Z-Axis
Z SUB P	Payload Structural Body Reference, Y-Axis
Z SUB S	SRB Structural Body Reference, Z-Axis
Z SUB T	ET Structural Body Reference, Z-Axis
ZGT	Zero Gravity Trainer
ZI	Zone of Interior (Continental USA)
ZPN	Impedance Pneumogram

APPENDIX B (DELETED)

I

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C (DELETED)

I

THIS PAGE INTENTIONALLY LEFT BLANK